AN

ESSAY

ON THE

HYDROPHOBIA:

To which is prefixed

The CASE of a Perſon who was bit by a MAD DOG; Had the HYDROPHOBIA; and was happily cured.

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THE PREFACE.

THE following History of an Hydrophobia, *from its first Rise to its final Defeat, can hardly prove either disagreeable, or useless. To this I have annexed some Inquiries; which, it is hoped, will be of Use too; as they tend to rescue this Article of Practice from Empiricism; and to weaken an implicit Deference, that hath so long, and so unsuccessfully, been paid to certain Opinions concerning the Poison of mad Dogs; the manner of its operating in the human Body; and the Nature of the Distemper it produces.*

The Case, as a Narrative of Facts, I have given, with the severest Eye to

Truth, as far as I was able to trace it. The Queries, I addreſs to the learned, the experienced, and the candid, of my Brethren of the Faculty: Theſe are the Judges I would be tried by; becauſe they who are competently aware of Difficulties, are uſually the moſt favourable Cenſors of Defects.

Theſe Papers had been publiſhed a good deal earlier, but I waited to ſee whether any of the different Moons, or Seaſons of a Year, might bring on a Relapſe of my Patient's Diſorder. Perhaps they may ſeem to be publiſhed rather too early for the Condition they are in. I need not enumerate their Imperfections: The Judicious will readily find them out; and will, I hope, as readily and humanely excuſe them, as the Imperfections but of a rough Draught of

what may one time or other poſſibly appear under fewer Diſadvantages. The Road leading to what I ſought, was intricate, unfrequented, and dark; and I took no Guide; thinking it indeed not very prudent to truſt to People for Guides who had themſelves been always diſappointed in the ſame Purſuit; and I knew not of others.

In theſe Inquiries, I have endeavoured to clear away ſome Rubbiſh that for many Ages had incumbered this outlying Skirt of medical Ground: I have even attempted to reclaim, and bring it within the Pale of regular Practice. I am ſenſible, that many handſome things have been ſaid, and that much Erudition hath been poured out, upon this Subject. Authors of all Characters have been viewed, and re-viewed, and cited with great

Dignity and Addreſs: But after all, what one old Error hath yet been diſpoſſeſſed? what rational Indication of Cure aſcertained? or regular Method of Practice eſtabliſhed? Theſe are the Ends; *and if theſe are not obtained, what is done? what is a Profuſion of glittering* Means *that anſwer no* End? *or a gay Apparatus of uſeleſs Scaffolding, without the leaſt Veſtige, either of any Edifice built, or any Foundation laid to build on?*

I am now to account for ſome Repetitions, that may ſeem to occur in the Peruſal of the following Sheets; and I beg leave to offer; that, to convey a tolerable Idea of the Nature, and Operations of the Poiſon of mad Dogs, where the Cauſe proceeds ſo much out of the Reach of common Obſervation; it was neceſſary to compare

pare the Progreſs, and Effects, of that Poiſon, with thoſe of ſome others, whoſe Steps are more eaſily traced, and whoſe Remedies are better known. So many Analogies, and ſuch different Compariſons of different morbid Cauſes that produce like Effects, have given Occaſion to ſomething like Repetitions; which, I imagined, it was better to ſubmit to, than leave my Meaning obſcure; or give my Reader the Trouble of too many References to former Pages and Paragraphs.

THE

ERRATA.

Page 93. *line* 18. *read* Salt of Amber.

172. *l.* 7. *for* very different, *read* oppofite.

THE

CASE, &c.

ELizabeth *Bryant*, Servant to Mr. *Rogers*, Jeweller, in *Bath*, about 22 Years old, of a good Habit of Body, partaking chiefly of the Sanguine and Phlegmatic, and in the main healthy, was, on the 24th Day of *June* 1751, bit by a mad Turn-ſpit Dog in Two Places: One was on the third Finger of her right Hand, pretty near the Joint next the Nail: From this there iſſued ſome Drops of Blood: The other was on the Back of the ſame Hand: The

Skin was pinched through, but it did not bleed. Theſe Sores were ſoon healed, without any particular Application or Trouble.

THIS young Woman, ſoon after ſhe was bit, the ſame Day, obſerveing the *Dog* more ſullen than ordinary, and frothing at the Mouth, began to ſuſpect he was *mad*; and, by way of Trial, minced a little Meat, and gave it him; of which he took ſome in his Mouth, but could not *ſwallow* it, but ſoon let it drop, together with a good deal of *Froth* and *Slaver*. This, another *Dog* that came in, licked up, and eat; and was killed, *ſlavering* and *mad*, about three Weeks after: But the *Dog*, that bit the young Woman, died, *without Violence*, the next Day after he had bit her.

A Neighbour, it ſeems, told her the *Dog* was not *mad*; and that he died only of ſomewhat that ſtuck in his Throat; which made her neglect the Accident; and nothing was done for her till three Weeks after; when Mr. *Wright*, an eminent Surgeon and Man-Midwife here, having had Occaſion to viſit Mrs. *Rogers*, and hearing what happened to her Maid, ordered her immediately to the Sea; where ſhe was dipped, till ſhe could bear it no longer. Upon her Return home, he had her blooded at the Arm of the Hand that was bit. He then gave her four Doſes of the *Pulvis Antilyſſus*, according to the Directions publiſhed by Dr. *Mead*; of which, ſhe took the firſt, the 16th Day of *July*: On the 20th ſhe was ſent to the *Cold Bath*, and conti-

nued it for four Mornings ſucceſſively: After which, finding her complain of a *Numbneſs*, and ſome *Pain*, in the Arm and Shoulder of the Hand that was bit, he ordered her the *Muſk* and *Cinnabar* Powders, commonly called Sir *George Cobb*'s Medicine, for two Nights: She thought her *Spirits* greatly relieved, and ſaid ſhe was very well: He would have had her into the *Cold Bath* next Day again; but that ſhe ſaid ſhe had her *Catamenia*.

This was briſk Treatment for the Time; and, one would have thought, as likely to prevent the uſual terrible Effects of the *Bite* of a *mad Dog*, as any perhaps hitherto known or practiſed: But it proved inſufficient; for, two Days after the laſt Bathing, ſhe was ſeized with an *Hydrophobia*.

Before I proceed to give an Account of this acute and ruinous Part of the Diſorder, it may not be amiſs to look back on ſome Particulars that occurred between the time of her being bit, and that of her being taken ill. One need not be aſhamed either of Minuteneſs or Prolixity, where Stile, Manner, and every other Conſideration, ought to give way to the ſingle Advantage of being clearly underſtood: Neither ought any Circumſtance to paſs for trifling or unneceſſary, that may tend to caſt any Glimmerings of Light on a Subject of this dark Nature, and general Concern; or contribute ever ſo little towards eſtabliſhing *juſt Indications of Cure*, in a Diſorder, that, once arrived at this precipitate Stage, had proved ſo difficult

ficult and dreadful; and, in ſome meaſure, unfortunately eluded the Endeavours of almoſt all Ages.

ACCORDING to the young Woman's own Account, and what could be gathered from the Family ſhe lives in, ſhe paſſed the firſt Fortnight after ſhe was bit, without any remarkable Change. After that, ſhe began to loſe her Colour, and to grow ſomewhat uneven, reſtleſs, and fretful in her Temper; ſometimes heavy, indolent, and careleſs of her Buſineſs; and ſometimes rather too lively, diſpatching a good deal more Work than uſual, in a little time: Her *Appetite* gradually failed, and ſhe was often ſick at *Stomach*: Her *Nights* were bad; diſturbed with Dreams, of *Dogs* fighting, and ſometimes purſuing her ſo cloſely, ſhe could

could hardly eſcape them; and of Danger, from falling into deep *Pools* of *Water*, and being forcibly kept in; and this too, before ſhe was ſent to the *ſalt Water*, or (as ſhe declares) either had, or could have had, the leaſt Thought of her being ever adviſed to try that Remedy.

After her Return from the *Sea*, in Addition to her former Uneaſineſſes, ſhe had frequent convulſive Catchings in her *Hands* and *Arms*, particularly in *that* which was *bit*. Her Dreams of *Dogs* and *Water* tormented her as before; but, along with that, ſhe began to have ſome Terrors at the *Barking* and *Howling* of *Dogs*. She could, as yet, bear to be where *Dogs* were; but their firſt Appearance made her tremble;

tremble; and ſhe ſtill ſhudder'd whenever ſhe touched them.

It may, however, be worth remarking, that, about *two-and-thirty* Days after ſhe was bit, *viz.* the Day before ſhe was taken ill, two red *Pimples*, with little white Heads, broke out juſt upon the *Marks* the *Dog* had left, where he had pinched the Skin on the Back of her Hand; but theſe Pimples diſappeared in a little time. But to return to the *Hydrophobia*:

On *Saturday* the 27th of *July*, in the Morning, about five Hours after the *Moon* was at full, this young Woman, ſoon after ſhe returned from Market, was *all at once* ſeized with a Pain in the third Finger, and at the Back of her *Hand*, juſt

juſt in the *Places* where ſhe was *bit*; which, as ſhe deſcribed it afterwards, felt to her as if ſome *cutting Inſtrument* had been *darted* into thoſe Places, and from thence proceeded *ripping* through the *Fleſh*, all along her *Arm* up to the *Shoulder*, and thence acroſs to her *Throat*, where it ſeemed to her to *end*, and exert its greateſt Force; producing, ſhe imagined, ſome *large Subſtance*, that ſhe thought would have ſtopped up her *Throat*, and ſtrangled her every Moment: She cried out, as well as ſhe could, that ſhe ſhould be choaked; and took faſt hold of the Fore-part of her *Neck* and *Throat*, as if to hinder its cloſing up, and prevent her being immediately ſuffocated. From this time ſhe could not bear the *Sight* of *Water*; nor even the *Noiſe* of Water falling from

a *Pump* without Doors, in a back Place near where ſhe was; much leſs could ſhe *ſwallow* any; not even a *Drop*. She was in the utmoſt Terrors and Agony upon hearing *Dogs* bark or howl. She ſoon loſt her *Voice*; and, except at a few Intervals, could only make a Shift, after many Struggles, and much mouthing, to ſtammer out a long imperfect *Yes*, or *No*, in broken ſharp Hiſſes, without any Articulation.

Her *Pain* did not ſeem to her to be one continued, uniform, fixed thing; but to conſiſt rather in a Number of quick Shootings, and Succeſſions of Pain, that *always* began at the Parts bit, darted up the Arm, ended at her Throat, and ſo on repeatedly, ſtill in the ſame Round or Whirl; the Returns quicker or

ſlower,

ſlower, and the Pain more or leſs acute, as the Occaſions of ſeeing or hearing *Water*, hearing the *Barking* of *Dogs*, and the like ſhocking Incidents, happened to recur; in which Caſes, the Succeſſions of the *darting* Pain were almoſt uninterrupted; and the Pain itſelf, ſhe ſaid, intolerable; attended with a *Suffocation*, *ſhort Breathing*, *Dizzineſs*, violent *Riſings* at her *Stomach*, *Breaſt*, and *Throat*; and ſtrong *Catchings*, at her *Fingers* and *Arms*, and almoſt all over, as if ſhe were juſt going into *general Convulſions*; which it is probable ſhe muſt have done, if *Water* or *Dogs* had been kept in her *Sight* or *Hearing* for any time together.

SINCE her Recovery, ſhe has often wondered People would give themſelves the Trouble of ſtifling

poor Wretches like her, as ſhe heard was often done, between Feather-beds; for, ſhe ſaid, they needed only to have kept *Water* in her Sight, and it would have certainly done the Work in a few Moments.

She was no ſooner taken ill than Mr. *Wright* was called upon, and he came. He gave her a little Water and *Spirits* of *Hartſhorn* in a ſmall Cup, and ſhe took of it, but ſuddenly threw it out of her Mouth, and ſome Froth and Phlegm along with it. Some Women who ſtood by, inſiſting ſhe had only *Hyſterics*, Mr. *Wright*, without letting the Patient know any thing of the Matter, had a Baſon of *Water* brought in, as if by chance; but the Moment ſhe caſt her Eye that Way, ſhe ſhrieked out moſt vehemently; toſſed

her

her Head back with the quickeſt Action imaginable; and fell into the complicated *Diſtreſs* juſt now recounted.

Upon this Mr. *Wright* deſired a *Phyſician* ſhould be ſent for: I was ſoon there, and found the poor Creature in this *diſmal* Plight; well enough in her *Senſes*, and eager and ſtruggling to expreſs her *Thoughts*, but in vain. Her Countenance was a little *flushed*, and ſhe had an *eager*, *ſcared*, *fierce Look*. Her *Pulſe* was eaſy, bold, and regular; her *Tongue* moiſt, and clean; and ſhe had no *Thirſt*. We tried her now again with the Sight of a *Baſon* of *Water*, and it threw her into the Sort of *convulſive Agony* before deſcribed.

In this *Extremity*, we concluded to have her *bled*; and ſhe immediately was, to about *fifteen Ounces*.

Ordered a Paper of Sir *George Cobb*'s *Muſk* and *Cinnabar* Powders to be taken in *Honey* every three Hours; to begin as ſoon as they could poſſibly be got ready:

A Pill of two Grains of the *Thebaic Extract* (pure Opium) to be given every three Hours, along with the *Powders*, till *Reſt* could be procured: And

A Plaiſter, with *Galbanum*, and half an *Ounce* of the *Thebaic Extract*, to be applied to her *Throat* and *Neck*, immediately.

This was about Eleven o'Clock in the Morning, ſhe having been firſt ſeized between Nine and Ten.

The *Muſk* and *Cinnabar* Powders, ſo often mentioned in this Caſe, are thus to be made up:

TAKE native and factitious Cinnabar, of each twenty-four Grains;

Muſk (which ought to be very good), ſixteen Grains;

Let them be finely powdered, and mixed up into a Bolus with a little Honey; or (becauſe Honey is ſometimes diſagreeable) with Syrup of Saffron, of Maidenhair, or almoſt any other Syrup you pleaſe.

In the Evening.

We found, though ſhe had been in great *Pain*, and very reſtleſs moſt Part of the Day, and at one time *quite intractable*, that ſhe was nevertheleſs, in the main, a little eaſier at Inter-

Intervals; and could tell thoſe about her, ſhe thought ſhe found herſelf ſomewhat relieved by the *Bleeding*. She now, by much Perſuaſion, attempted to ſwallow a *Spoonful* of *Broth*; which, after holding and working a good while in her *Mouth*, ſhe at length effected, with great Difficulty, and many odd *Geſticulations*, and *Graſpings* at the Bedcloaths, or any thing ſhe could lay hold of, as it were to uſe every *Aid*, and ſummon all her *Forces* to enable her to compaſs it. In this manner ſhe made a ſhift to get down three Spoonfuls. Her *Blood* looked very well.

THIS *Difficulty* in ſwallowing *Liquids*, ſhe afterwards told us, did not proceed from any Feel of *Soreneſs*, or *Pain* it cauſed at thoſe Times,

as

but from a mere *Inability* to get them down; owing, as it then ſeemed to her, to ſomething, that, as often as ſhe made the Attempt, ſtill ſuddenly roſe in her *Throat*, and oppoſed their Deſcent, ſo as to make the ſwallowing them ſeem utterly impracticable; not unlike the Effects of the *Globus Hyſtericus* in ſome *hyſteric* Paroxyſms.

Directed, that ſhe ſhould take the *Muſk* and *Cinnabar Powders*, and the *Opium* Pill, every three Hours, as before:

And that the Hand that was bit, and that whole Arm, ſhould be well chafed with warm *Sallad Oil*, ſeveral times a Day.

Sunday *Morning*, *the* 28*th*.

Only two Papers of Powders, and two Pills, taken in the Night.

She brought up the laſt Doſe of both; and being being very ſick at Stomach, they gave her no more till Morning. She had little or no Sleep, but lay pretty quiet. She made ſome Water in the Night. Her Skin now rather *moiſt* than *dry*: And ſhe could ſpeak, though in a ſhrill, diſagreeable, whining manner. Her Pains ſtill very troubleſome; and her Swallowing but little better. Her Pulſe was ſtrong, and quicker than Yeſterday. She had no Stool ſince *Friday*; *viz.* the Day before ſhe was taken ill.

Had her bled again, to about twenty Ounces.

Preſcribed a Clyſter with *Antimonial Wine*:

That the Powders and Pill ſhould be continued every three Hours, as before: And

That

That ſhe ſhould be chafed with the *Sallad-Oil*, as Yeſterday.

Sunday *Evening*,

She could ſwallow Liquids ſomewhat better; and had got down a Pint of one kind or other, at times, ſince Morning. Her *Urine* little in Quantity, and of a natural Colour, with a good *Sediment*. She had no Sleep; and the *Clyſter* had had no Effect.

Ordered a Repetition of the Clyſter; and (as ſhe complained of great Heavineſs and Sickneſs at Stomach, and had thrown up her laſt Doſe of Powders and the Pill the Night before), in caſe her Sickneſs continued, ten Grains of *Turbith Mineral*, to be taken in a *Bolus*; and the Powders and Pill every

three Hours afterwards, as ſoon as her Stomach could bear them. It ſeems, a good deal of the ſecond *Clyſter* returned immediately after it was given: It was therefore adviſed, if what remained did not ſucceed, to uſe a Suppoſitory of *Soap*, rolled in powdered *Salt*.

She had now taken four Grains of the *Thebaic Extract*, and three Doſes of the *Muſk-Powders*.

Monday *Morning*, *the* 29*th*.

Found her ſtill better in the main. The *Clyſter*, though a good deal came off almoſt as ſoon as it was given, had wrought well; by which ſhe thought herſelf much relieved. She lay moſt of the Night quiet; and ſweated a great deal, tho' ſhe ſlept but little. Her *Sick-*

neſs

neſs went off; ſo the *Vomit* was not given. Her *Swallowing* much better; and ſhe got down near a Quart of one thing or other in the Night. Very thirſty. Pulſe ſtill pretty full. This laſt Night ſhe took ſix Grains more of the *Thebaic Extract*, and three Doſes of the Powders.

THIS Morning had her blooded to about 12 Ounces.

THE *Opium* Plaiſter to be renewed to her Throat; but with only two Drachms of the *Extract*.

THE *Oil* to be chafed in, as before:

THE *Muſk* and *Cinnabar* Powders to be continued; and to drink often of *Barley-water*, with *Nitre*, *&c.* becauſe of her Thirſt.

Monday *Evening*.

EVERY way better. The Pain in her Hand and Arm was quite gone:

But,

But, though ſhe could take a Pint Baſon of *Tea* in her Hand, and drink it off, yet her Fear of *Dogs* and *Water* ſtill continued. She ſat up for a Couple of Hours this Day, in a Room that was rather too airy; and many People coming in, and going out, the Door was opened upon her too often.

The *Muſk* and *Cinnabar* ordered to be taken ſtill, as before.

The *Oil* to be ſtill chafed in; and *two Grains* (only) of the *Extract* to be given at Night.

Tueſday *Morning*, *the* 30*th*.

She had been very ſick at *Stomach* moſt Part of the *Night*, eſpecially for ſome Hours about *Midnight*: Had ſlept but little, but ſweated a good deal. Complained of *acute*

Pains

Pains all over, and ſeemed very heavy and languid. She made a reaſonable Quantity of Urine, with a *Sediment*; and continued to ſwallow her *Liquids* very well. This Change in her for the worſe, in ſome Particulars, was (very probably) owing to her having catched Cold while ſhe was up the Day before. Her Pulſe ſomewhat lower than uſual.

Now adviſed the *Muſk* and *Cinnabar* to be given but every *ſix* Hours.

A Repetition of the *Clyſter*, without the *antimonial Wine*. And

The *Oil* to be continued, and rubbed on, as before.

The *Nitre* was omitted, on Account of her Sickneſs at Stomach; and the *Opium* now was quite laid aſide.

Tueſday

Tueſday *Evening*.

HER Sickneſs at *Stomach* much abated, and her *Pains* leſs *acute*. The laſt *Glyſter* did its Office very well, and ſeemed to relieve her. She ſlept and ſweated a good deal ſince Morning; and drank plentifully of *Watergruel*, and *Baum Tea*.

THE *Powders* to be given every *ſix* Hours, as before.

Wedneſday *Morning*, *the* 31*ſt*.

FOUND her a great deal better; but ſhe had been again, about Midnight, taken with a *Fit of Sickneſs* at *Stomach*, as ſhe was the Nights before; but did not hold near ſo long. She afterwards ſlept well, and ſweated plentifully. The *Pain* ſhe complained of in her *Bones* quite gone.

gone. Her *Urine* good, with a *Sediment*. Little or no *Thirſt*. Her *Swallowing* very eaſy: But her Dread of ſeeing *Water*, and *Dogs*, ſtill continues.

Ordered the *Powders* ſhould be given every *ſix Hours*, as before.

The *Opium* Plaiſter was taken off this Morning.

Wedneſday *Evening*.

She complained of ſome Sickneſs ſtill at her *Stomach*. She ſlept a good deal; and was languid, heavy, and diſpoſed to ſlumber on. Her *Shaking* continues. Her *Head* ached. A Sediment in her *Urine*: And her *Pulſe* fuller and ſtronger.

Advised that the *Powders* ſhould now be taken only *Night* and *Morning*.

Thurſday *Morning*, Aug. *the 1ſt.*

She had ſlept moſt Part of the Night, and *ſweated* a great deal. Had no Return of Sickneſs at *Stomach*, as in the foregoing Nights. Her Languor and Heavineſs now almoſt off; and the Effects of the *Opium* ſeemed almoſt over.

The *Muſk* and *Cinnabar* Powders to be taken as before, Night and Morning: And

Mr. *Wright* applied a Cauſtic for a Fontanel to the *Arm* that was affected.

Thurſday *Evening*.

Though otherwiſe tolerably well, ſhe complained of a little Heavineſs ſtill in her *Head*. She had ſlept ſome Hours ſince Morning. She had

no *Thirſt*; but her *Pulſe* was depreſſed and ſlow. She was asked, if ſhe thought ſhe could now bear the Sight of *Water*; and, upon her ſaying ſhe did not know but ſhe could, a Baſon of *Water* was brought: But the Moment it came in her *Sight*, ſhe cried out, with Signs of great Terror in her Countenance, and deſired to have it immediately taken away; and ſo it was: But ſhe nevertheleſs, all of a ſudden, grew *pale* and *ghaſtly*; got a *Shortneſs* of *Breathing*; a great *Sickneſs* at *Stomach*; a *Giddineſs* in her *Head*; and *convulſive* ſhort Catchings almoſt all over her, eſpecially in the *Hand* and *Arm* firſt affected. Being now aſked to drink a ſmall Baſon of *Tea*, that had been brought her to drink before this Experiment, ſhe refuſed it, ſaying, ſhe could not ſwallow it,

becauſe of the great *Sickneſs* at her *Stomach*: But her *Symptoms* gradually abated, and in about ten Minutes ſhe drank down her *Tea*.

THE *Powders* were ordered Night and Morning, as before.

Friday *Morning*, Aug. 2*d*.

SHE had ſlept but ill, eſpecially the Beginning of the Night; and when ſhe did, her Sleep was diſturbed with *Dreams* of falling into large *Pools* of Water, being purſued by *Dogs*, and the like; which it had not been in any Sleep ſhe fell into before, ſince the 29th; that is, for the two or three laſt Days and Nights. Her *Sickneſs* at *Stomach*, occaſioned by Yeſterday's Baſon of *Water*, was not yet quite off. Her bad Night, and frightful Dreams, are alſo very referable to the *ſame Cauſe*.

HAV-

HAVING had no Stool ſince *Tueſday*, a *Clyſter* was preſcribed: And

The *Powders* as before.

Friday *Evening*.

SHE told us ſhe had ventured to ſee a Baſon of *Water* ſince Morning, and bore it very well, except that it made her a little *giddy*; and, for our Satisfaction, deſired one ſhould be brought her then; which being done, ſhe ſat up in Bed, and ſaid ſhe now looked on the *Water* without Terror, though it gave her a Touch of *Giddineſs*. This Evening there appeared ſome *red Pimples* here and there on the *affected Arm*; but they were moſtly gone off by next Morning.

THE *Powders* ordered, as before.

Satur-

Saturday *Morning*, Aug. *the* 3*d*.

She ſlept but little the preceding Night; poſſibly owing to the *Water-Trials* of the foregoing Day; but was otherwiſe pretty well. Being aſked, if ſhe thought ſhe could now bear the Sight of *Dogs*; ſhe ſaid, ſhe could talk of them without any Dread; but if ſhe heard them *bark* or *howl* (as where ſhe lay, it happened ſhe ſometimes did) it ſtill gave her *Trem-blings*; and ſhe *ſhuddered* at the Thoughts of ſeeing one.

The *Powders* to be continued Morning, and Evening, ſtill.

Sunday, Aug. *the* 4*th*.

She had a good Night; and was now almoſt free from her *terrifying Dreams*. This Day ſhe ſaw a *Dog*; but with ſome ſmall Apprehenſion, and Trembling.

Di-

Directed that the *Powders* ſhould be uſed now but once in twenty-four Hours; *viz.* at Night.

After this, ſhe mended in *Appetite*, *Strength*, and *Spirits*, every Day, till about the 15th or 16th, that an Accident or two happened, which had like to overturn all we had been doing.

A Man, dreſſed, they ſay, like a *Gentleman*, went to Mr. *Rogers*'s, and aſked a Servant there, for the *young Woman* that was ill: As ſoon as ſhe came, he ſtared her *earneſtly* in the Face; and told her, he had heard ſhe was *cured*; but he could *aſſure* her ſhe *was not*; that ſhe *looked extremely ill*; and that it was *impoſſible* ſhe *ever* ſhould be *cured*. Then, abruptly catching hold of her Hand, and pretending to feel her *Pulſe*; he ſaid,

said, her *Pulse* was *very bad*; and, as if to affright her yet more effectually, added *another Lye*, telling her, that the *Doctor* and *Surgeon* were just coming; that they would have her bled immediately, and make her take all the Remedies over again; but it would be to no Purpose: And so he walked off, leaving the poor Creature half dead with the *Fright*, and scarce able to tell her Mistress, and the other Maid, the Story.

A Day or two before this, as she went through the *Market-place*, a Woman bolted out of a House upon her, and asked her how she did; Being answered she was well, she told her; *Ay, 'tis a Lightning before Death; You may fancy what you please; but you'll be dead in a Week for all that.*

These

THESE unhappy Inſtances of human *Weakneſs*, or *Wickedneſs*, whichever it was, I could have willingly omitted here; but the *Effects* they produced, and the *Medicines* that ſubdued thoſe *Effects*, ſeeming to caſt yet more Light on the true Nature of the Subject, I imagine they ought to be made known, without Apology or Diſguiſe.

IT muſt eaſily occur, that ſuch *Shocks*, in ſuch a *Caſe*, and at ſo *critical* a *Time*, may produce the worſt of *Effects*. A *Body* already weakened by Evacuations and Sufferings, and a *Mind* ſo lately and violently agitated, and but juſt recovering from the greateſt Terrors, are very eaſily affected; and might, by the ſtrange Treatment now deſcribed, have been overſet beyond all Hopes of Remedy.

And ſhe was indeed much affected. She grew heavy, melancholy, and ſleepleſs: She intirely loſt her *Appetite*; and her *Arm* became hot, ſore, and inflamed, where the *Cauſtic* had been applied.

However, by means of an *Opiate* at Night, and proper Applications to her *Arm*, her *Symptoms* abated, and ſhe mended, though ſlowly, till about the 23d, that ſhe grew uneaſy again, nearly as before, all to the *Softneſs* of her *Arm*, which I think troubled her no more.

The *Muſk* and *Cinnabar* Powders were again preſcribed to be taken at Nights, with *Elder-flower* Tea; for all her Amendments proceeded with a *Sweat*, more or leſs; but having ſweated little or nothing, and her

Uneaſineſs of Mind, want of Reſt, and other Symptoms, continuing, an *Opiate* was given on the 25th; and next Day, a Doſe of the *Muſk* and *Cinnabar* Powders: She grew better in the main: But, unluckily happening to ſee the Man, who had already ſo frighted her, ride at a Diſtance along the Road by Mr. *Roger's* Houſe, all her former Apprehenſions and Melancholy returned; with a Heavineſs, and Loathing at Stomach; a great Dejection of Spirits; an utter Deſpair of ever doing well; and a ſullen Intractableneſs, as to the taking Remedies; differently from what her Diſpoſition had been all along before, except the Day ſhe was firſt ſeized, during ſome Hours of which, ſhe ſeemed quite ungovernable. The bare *Sight* of this extraordinary Perſon was almoſt as bad to

her, at this time, as that of a whole Pack of Hounds could have been, even when her Dread of *Dogs* and *Water* ran higheſt.

She was nevertheleſs, by much ado, prevailed on to take a *Vomit* of of *Ipecacoanha Wine* in the Forenoon, and a Paper of the *Muſk* and *Cinnabar Powders* at Night; but ſhe had neither Sleep, Sweat, or any other ſenſible Benefit; but was next Morning as much diſordered as the Day before, ſtill complaining of a *Sickneſs* and *Loathing* at *Stomach*.

She had had no Stool ſince Yeſterday's *Vomit*; a *Clyſter* was therefore ordered; which operated; but ſhe was little the better.

Next Morning, finding her Pulſe rather *bold*, though her Spirits were

low,

low, ſhe was bled to about 12 Ounces; and Draughts, with *Salt* of *Wormwood* and *Juice* of *Lemons*; and ſome *Bitter*, and *anti-hyſteric* Medicines; were preſcribed at the ſame time.

In the Afternoon we found her, in moſt reſpects, as before; but with an additional Complaint, of *quick, ſhooting Pains* in the *Hand* that was *bit*, and all up that *Arm*; with ſeveral *Catchings*. This was an alarming Circumſtance; and yet, as ſhe had ſo lately undergone many Evacuations and Shocks, I hoped it might now be all but *ſimple Hyſterics*; which, I ſuppoſed, may be very likely to affect thoſe Parts of the nervous Syſtem moſt, that had already, though from a different Cauſe, been agitated and weakened by Spaſms and Diſorders before; and conſequently

quently the Parts of the animal Oeconomy moſt influenced by theſe Nerves; of which, the *affected Arm* was certainly one.

THIS led me to think, as indeed I often did before in this Caſe, that *Camphire*, *Aſſafœtida*, *Muſk*, *Opium*, *Caſtor*, *wild Valerian*, and the like antiſpaſmodic Medicines of our firſt Claſs, given in larger Doſes, and diverſified according to the Patient's Condition and Conſtitution, may do a great deal, not only in this Exigence, but even in the *Hydrophobia*; and Mr. *Wright*, whoſe Aſſiduity and Tenderneſs through this whole Affair deſerves the higheſt Commendation, on my declaring what I thought of this Matter, mentioned a particular Mixture of *Aſſafœtida*, *Muſk*, and *Camphire*, which he had heard the

learned

learned Dr. *Hallet*, of *Exeter*, ſpeak of with great Praiſe in ſome hyſteric Caſes, from his own Experience: I therefore preſcribed 12 Grains of *Aſſafœtida*, 10 Grains of *Muſk*, and ſix Grains of *Camphire*, to be mixed up into a *Bolus*, and taken as ſoon as it could be prepared; and another, at Bed-time; and the *ſaline nervous Draughts* between whiles.

Next Morning, the 3d of *September*, ſhe was much mended; had *ſlept* and *ſweated* in the Night; was free from *Pains* and *Catchings*; her *Spirits* were raiſed, and her *Stomach* was eaſy.

Two of the *ſaline Draughts* were now ordered for the Day; and the *fœtid Bolus* for Night.

NEXT Day, *viz.* the 4th, ſhe was ſtill better; and the *Draughts* and *Bolus* were ordered as before.

AFTER this, ſhe ſeemed in all reſpects in ſo good a Way, as not to want any more Medicines; and, in ſome time more, recovered her Fleſh and Strength; grew as well as ever; and continues to this Day, without the leaſt Return, or Sign, of her old Diſorder.

AN

AN

ESSAY, &c.

THIS Inſtance of the *Hydrophobia* now before us, is diſtinguiſhed with ſo many Circumſtances that ſeem to lead to a Diſcovery of the true *Genius*, and *Cure*, of this frightful Diſtemper, that I could not forbear trying my ſmall Forces, in the following *Queries*. Truth is my Aim; and I hope I have not intirely miſſed it: If I have; I can only wiſh this Endeavour may luckily excite others to undertake the humane Taſk, and ſupply my Deficiencies.

WHATEVER may be advanced concerning the various Kinds of Motion that muſt concur to the Subſiſtence of an animal Function; it ſeems thoſe of Vibration, Pulſation, and Oſcillation, if to be reckoned different Motions, are generally counted among the principal. All Nature vibrates; the inanimate, as well as the animate; and is in a conſtant Tenor of Pulſation through all its Parts. Our livelier Thermometers ſhew the Air is ſo: And Obſervation furniſhes Reaſons to conclude, there is not in the Univerſe, perhaps, a ſingle Atom that is *perfectly* at Reſt; though Reſt is the very Condition every Atom in the Univerſe would undoubtedly ſubſide into, were it left to its own natural Diſpoſition. *Nature*, as we are apt to call the general Oeconomy of the material World, is *always right*; though every thing within

within the Compaſs of that vaſt Oeconomy is in a State of Violence; and yet every thing at the ſame time, in ſpite of its own Nature, wonderfully conſpiring to the Order, Beauty, Magnificence, and Uſefulneſs, of the Whole: I ſay, *in a State of Violence*; and *in ſpite of its Nature*; becauſe nothing is ſuffered to proceed according to the real, direct Tendency of its own Nature: All Bodies affect to be at Reſt; yet no Body is at Reſt. All Bodies affect to move in right Lines; yet no Body really moves in a right Line *. In the ani-

* *Should the Motion of Light be thought an Exception to this; Let it be conſidered, that even the Rays of Light, with all their Pineneſs, and Velocity, are ſtill ſubject to the common general Laws of Gravitation, Attraction,* &c. *Sir* Iſaac Newton *has ſhewn they have their Attractions, Reflexions, Refractions, Pulſes, Vibrations, Fits of eaſy Reflection and Tranſmiſſion, and various Inflexions, Deflexions, and Diſturbances, enough to ſecure the Probability of what is here ſaid.*

mal Oeconomy, there is not perhaps a *Fibre* that is juſt in the Poſition it would aſſume, were it at Liberty to change: They are always kept upon the Stretch; always beyond their natural Point of Reſt; as appears from their ſtill ſhrinking back, and leaving a *Gap* where-ever they are cut. Thus are all material Beings, as far as we can ſee, every Moment abſolutely controuled in their very Eſſences; and that very Controul abſolutely neceſſary to the Conſervation of all; plainly ſhewing, how *indiſpenſible* the ever-gracious Preſence, and all-powerful Efficacy, and Coertion, of the great over-ruling *Firſt Cauſe*, muſt *inceſſantly* be, not only to the Oeconomy, but Exiſtence, of his whole Creation.

As to the human Body; that is conſtituted of (what are termed) *ſo-*

lid

lid Fibres, which are conſtantly in *Exerciſe*; and *ſofter Fluids*, that are conſtantly in *Motion*. The Structure of an animal Fibre hath given Riſe to a great deal of curious Speculation: But its Elaſticity; its Contractions and Dilatations; its being liable to be ſtimulated into greater and quicker Efforts of Contraction and Dilatation; and ſometimes into conſtrictive Spaſms; theſe are *Facts*, that, I think, are not denied by any body.

Query I. If the *natural* and vital Action of the Nerves, and nervous Solids, in the human Body, ſolely conſiſts in a *regular* Succeſſion of alternate Contractions and Dilatations; and that the Uſe of this natural regular Action is, to propel, prepare, and diſtribute the Fluids, for the Secretions, and other neceſſary Purpoſes, of the animal Oeconomy;

muſt

muſt not the *preternatural* Action, or rather Paſſion, of theſe ſame Nerves and Solids, conſiſt in *irregular* Emotions, and ſpaſmodic Strictures? And muſt not ſuch Emotions and Strictures, ſo different from the natural ſalutary Oſcillations, cauſe a diſturbed Propulſion, a defective Preparation, and an unequal Diſtribution, of the Fluids; and conſequently, bad Secretions, and a diſordered animal Oeconomy; and this Diſorder, greater or leſs, according to the Cauſe and Degree of the excited Spaſms; the Structure and Office of the Parts affected; and various other Circumſtances?

2. WHATEVER the *immediate* Cauſe of the natural and ſalutary Oſcillations of the Solids may be; is not that of their diſorderly ſpaſmodic Emotions, on all hands, allowed to be,

be, either ſome *material Stimulus*; or ſome *affecting Thought*?

3. Are not Diſorders of the nervous Syſtem generally reputed the firſt ſenſible morbid Effects of all Poiſons, and poiſonous Cauſes, that have got Admiſſion into the Habit? And, as to the Cure of theſe Diſorders, is it of any Conſequence, whether they are produced by the *immediate* Application of the firſt ſtimulating virulent Cauſe; or by the *intermediate* Action of a nervous Fluid, or animal Spirits, that are poiſoned, and perverted by this firſt Cauſe?

4. If it is generally agreed, that the firſt morbid Exertions of poiſonous Cauſes are purely nervous; and that being flung into ſpaſmodic Emotions and Strictures is the only manner

ner in which the nervous Syſtem can be preternaturally affected, except perhaps when ſome Nerves are rendered paralytic; is it not to be concluded, that the Poiſon of a *mad Dog* acts in juſt the ſame way; and that its firſt ſenſible Effects are purely ſpaſmodic?

5. May not ſtrong ſpaſmodic *Effects* of any kind, ſometimes, become *Cauſes*, and generate new Spaſms of a different Character, and Tendency, from the old? As in *Midwifry*; the Spaſms of Labour, have, in ſome Inſtances, brought on *Hyſteric* Spaſms exactly reſembling Labour; but which, inſtead of forwarding the Birth, only retard it, and weaken, and wear out the Patient, to no Purpoſe. Theſe ſpurious Pains *Deventer* calls *Dolores tergiverſantes*. He uſually allay'd them with *Opium*; and the genuine

Labour-

Labour-Spaſms came on ſoon afterwards, as he could wiſh. In like manner, may not the Spaſms excited by the Poiſon of a *mad Dog* ſuperinduce others like the firſt, which yet are of a different Nature; thus complicating the firſt virulent Spaſms with new ones of another Denomination, as Hyſterics, *&c.?*

6. Do not Spaſms, and ſpaſmodic Conſtrictions, be their Origin virulent or common, frequently bring on Inflammations, and overſet the animal Oeconomy, unleſs the Srrictures are releaſed within a certain time, ſuitable to the Exigence, and proportioned to the Kind, Cauſe, Greatneſs, Situation, and other Circumſtances, of the affecting Spaſms?

7. If virulent Spaſms, firſt taking place, bring on Inflammations; and

the Inflammations other Symptoms; doth not the Caſe grow ſtill more complicated; and in its Progreſs ſeem, at every new Step, to require a different Method of Treatment; one, whilſt it is *purely ſpaſmodic*; and another, when the *Spaſms* are complicated with an *Inflammation*, and a *Fever*, and *Heat*, and *Thirſt*, and whatever other ſuperinduced and accruing Symptoms may be ſucceſſively generated one by another, during the Courſe of the Diſorder?

8. In an *Hydrophobia*, are not the *Fauces*, *Throat*, *Oeſophagus*, and *Stomach*, among the larger Organs that are moſt directly and violently attacked? And have not they all, or ſome of them at leaſt, been hitherto generally thought to have been *inflamed* from the firſt Moment the Diſorder

Diſorder appears? *Boerhaave* calls it, *Summè inflammatorius*; ſuppoſing, no Doubt, though he conſiders it as a *nervous* Affection too, that an *Inflammation* is one of its eſſential, concomitant Symptoms; and yet he ſays, what I believe is commonly found true, that in the firſt Stage of the *Hydrophobia*, the Blood always appears to be *omni notâ bonus*. Now if, even in ordinary Inflammations of the *Fauces*, *Throat*, *Oeſophagus*, *Stomach*, *Pleura*, or any ſuch larger membranous Parts, there is always a preſſing Fever, a quick, and often a rigid Pulſe, a Heat, a Thirſt, a dry or foul Tongue, and a Maſs of Blood very ſizy, and *omni ferè notâ malus*; does it not follow, in this Caſe of *Elizabeth Bryant*, where a virulent Cauſe urged every thing elſe ſo very precipitately on, that no ſuch *Inflam-*

mations could have exiſted; ſince ſhe had not ſo much as one of all theſe eſſential Symptoms of a *membranous Inflammation?* And does it not equally follow, that neither an *Inflammation*, nor *Fever*, are amongſt the original eſſential Symptoms of that frightful Diſorder; ſince Diſorders cannot ſubſiſt without their Eſſentials; and that, without having any of theſe Eſſentials of a membranous Inflammation, this Patient moſt certainly had an *Hydrophobia*, that was, almoſt all at once, uſhered in, and attended, with as many violent Symptoms, ſtill excepting thoſe in Queſtion, as perhaps, at ſo early a Period, ever met in any one Perſon?

9. If this Patient had not had timely Aſſiſtance, is it not probable, ſince it is what ſo generally happened

in

in like Caſes before, that the *virulent Spaſms*, firſt producing her Diſorder, would, after a while, have brought on an *Inflammation* of ſuch membranous Parts as are more uſually and peculiarly infeſted by the Effects of that Poiſon? And would not ſuch *Inflammations* give a diſtinct Being to all their own eſſential Symptoms of a *Fever*, *Heat*, *Thirſt*? &c. Suppoſe a Phyſician is called in, not in one, or perhaps ſix Hours from the firſt Appearance of the Diſorder; but, what is much oftener the Caſe, twenty-four, thirty-ſix, or forty-eight Hours after: Now, finding all theſe untoward Symptoms raging thus promiſcuouſly together, is it not reaſonable to ſuſpect he may think they were all indiſcriminately and intimately connected with the Diſtemper, from its very firſt Riſe; unleſs

he

he were beforehand well appriſed of its true, natural, and ſimply ſpaſmodic Genius? And this Error may not the vague Accounts of Neighbours and Standers-by, who are uſually terrified on theſe Occaſions, and ſeldom have any Skill; and the Reading of Authors, who, almoſt one and all, ſpeak of this as a Diſtemper highly inflammatory, be very apt to lead one into?

10. Can the Signs of Inflammation, Drineſs of certain Parts, or any thing elſe that has occurred in the Diſſection of Perſons who died of an *Hydrophobia*, ſerve to determine, whether that Inflammation, or Drineſs, or whatever elſe may appear there, were originally connected with the *Hydrophobia*; or were only new Symptoms generated in the Courſe of the Diſor-

Diſorder? What, in general, can be more different, than the *Cauſe* of the Diſtemper, and *that* of the Death of the Patient? And yet, are not theſe two Cauſes frequently confounded together, and miſtaken one for the other? Of this, let one Inſtance ſerve inſtead of a thouſand: Stones paſſing the Ureters bring on *ſpaſmodic Strictures*; theſe, if not releaſed in time, bring on an *Inflammation*; this, a *Mortification*; and the Mortification, *Death*. Here, on opening the Body, the *Mortification* preſents itſelf, and appears to have cauſed the Death of the Patient: And ſo it has; though, in reality, it was neither the Cauſe, or any Part of the Cauſe, of his Diſtemper.

11. In Perſons bit by the *Tarantula*, are not the odd, involuntary, ſudden

ſudden Emotions, and unreaſonable Averſions, cauſed by certain *ordinary* Sights and Sounds; ſuch as their ſtrange Emotions and Geſticulations excited by Muſic; the Averſion and Diſturbance ariſing from the Preſence of black or gloomy Objects; and the like diſorderly inconnected Affections; are they not all Symptoms of a particular Species of *Madneſs*, cauſed by the Bite of that Animal? In like manner, the odd, involuntary, ſudden Emotions, unreaſonable Averſions, and violent Affections, produced on ſo *ordinary* an Occaſion as ſeeing, hearing, or touching Water; which is the Caſe of Perſons bit by a *mad Dog*; are not theſe alſo Symptoms of another Species of *Madneſs* cauſed by the Bite of this Animal? And, although theſe *Maniæ* are extremely unlike in many reſpects, is

there

there not an evident Analogy between the principal characteriſtic Symptoms of both? As indeed there ſeems to be between thoſe of every other Kind of *Madneſs*; and conſequently between the general Operation of their Cauſes; for, with the vaſt Variety of Shapes they put on, do they not all agree in their irregular diſturbed Affections, fixt Averſions, and ſtrange Emotions? And as to thoſe of the more ſerious and melancholy Turn; do not they appear as out of the way, and diſconcerted, in their ſtupid Alienations, as the others do in their livelier Extravagancies?

12. Do not the Cauſes, that immediately excite theſe *Maniæ*, give Riſe alſo to all their eſſential and concomitant Symptoms? Or, in

other Words, do not the Cauſes that give Riſe to all the other Symptoms, give Riſe alſo to their concomitant *Maniæ*? In the Caſe now before us of *Elizabeth Bryant*; has not the virulent Cauſe, that produced her *Mania*, at the ſame time alſo produced the quick Pains darting up her Arm; the convulſive Riſings and Catchings in her Throat, at the Approach of Water, ſtill rendering its being ſwallowed either really or ſeemingly impoſſible; her great Difficulty of ſpeaking, and ſharp, whining, canine Tone of Voice, when ſhe attempted it; the Swelling and Sickneſs in her Stomach; the Dizzineſs and Swimings in her Head; her Anxiety, Oppreſſion, ſhort Breathing, Terrors, Tremors, and the Whole of that dreadful Agony, that made up her Diſtemper? In one, who had neither

ther *Fever*, nor *Inflammation*, were not all theſe Symptoms plainly *ſpaſmodic*; and excited by irregular Vibrations and Strictures in the *nervous Syſtem*? And is it not probable, nineteen Parts in twenty of the hypochondriac and maniacal Affections, now ſo rife amongſt us, are owing to ſpaſmodic Cauſes; none of theſe being attended either with *Fevers*, or *Iaflammations*, except by Accident. Some *Frenſies* and *Deliria*, 'tis true, proceed, tho' rarely from an *Inflammation* of the *Meninges* in *Fevers*; or from their *Inflammation* upon ſudden Tranſlations of morbid Matter, ſoon producing a *Fever*? But, even in *Fevers*, are not moſt of the *Deliria*, that occur, and ſhort *Maniæ*, much oftener the Effects of ſymptomatic Spaſms, from the Connexion of the *Meninges* with other affected Parts;

ſuch as the *Diaphragm*, *Pleura*, and the like; than Effects from an Inflammation of the *Meninges* themſelves? *Huet*'s *Curatio Maniæ*, &c. where he ſays, he has often cured maniacal Diſorders only with *Opium*, and a few *Purges*, deſerves ſome Notice here; as it ſhews the *Maniæ* he cured, muſt have been all ſpaſmodic; and that it is more than probable, the *Opium* given ſo freely in the *Hydrophobia* under Conſideration, helped not a little towards allaying the Spaſms, and promoting that critical Sweat, by which the Poiſon was afterwards evaporated, and the Conſtitution relieved; at once, in ſome meaſure, anſwering, or mainly contributing to anſwer, the two grand Indications for the Cure of all inoculated Poiſons, that are in Poſſeſſion, and begin openly to exert

their ſpaſmodic Genius in the Habit; which Indications ſeem to be, firſt, to quiet the Spaſms, or at leaſt allay their Violence; and then, in Concert with the animal Oeconomy, to work off the virulent *Effluvia*, either by the Skin, the Kidneys, or ſome other convenient Emunctory; though that by the Skin is the Diſcharge Nature ſeems always moſt inclined to puſh for, when ſhe would get clear of Enemies of this active and ſubtil Character.

13. Do not certain Ideas, and Affections of the Mind, cauſe Emotions in ſome particular Portions or *Plexus*'s only of the nervous Syſtem, whilſt all the others ſeem to remain, at leaſt comparatively, but very little affected? The Idea of Sourneſs, let what will excite it, will often ſet the

Glands

Glands of the Mouth a running, and no others; and how, but by affecting the Nerves that influence thoſe Glands, more than any others? Some ſorts of grating Noiſes will, in juſt a like manner, ſet the Teeth on Edge, and affect the Gums, without diſturbing any other Parts of the Body. Nauſeous Ideas, ſtirred up by Seeing, Feeling, or even the Mention, of naſty Objects, diſpoſe ſome Stomachs to Sickneſs and Vomiting, by throwing the Nerves that govern the Stomach into Spaſms, whilſt the reſt of the Syſtem remains as it were undiſturbed; unleſs perhaps in a commercial or ſecondary manner. Now as ſome Ideas ſeem conſtantly to affect certain Nerves, or *Plexus*'s of Nerves, and not others; is it not reaſonable, on the other hand, to conclude, that any ſtimulating Cauſe, that pretty

conſtantly rouſes up certain particular Ideas, and but few others, does it only by vibrating chiefly ſome particular Nerves, or *Plexus*'s of Nerves, and but few others?

14. May not, therefore, the ſtrange Variety of Ravings, and Alienations of Mind, brought on by different poiſonous Cauſes, each yet acting almoſt invariably in a way of its own, be owing to this ſame latent partial Tendency of each, to attack ſome one Portion of the nervous Syſtem, more directly and peculiarly than any other? And if ſo, muſt not ſuch particular Organs, as are more immediately governed by thoſe affected Nerves, be ſtill likely to ſuffer on ſuch Occaſions, more than any others, that are not ſo directly under their Influence? In the *Hydrophobia*,

drophobia, as we find the *Throat*, *Oeſophagus*, and *Stomach*, uſually ſuffer more than any other Parts; may it not be preſumed, that the Nerves that govern theſe Organs are more peculiarly faſten'd upon, and diſturbed, by the Poiſon of a *mad Dog*, than any other Nerves or *Plexus*'s of the whole nervous Syſtem? And may not the particular Terrors, and horrid Ideas, of *Dogs*, *Water*, *Drowning*, and the like, whilſt the Patients are, in all other reſpects, ſenſible and humane, proceed from the particular ſpaſmodic Ruffle theſe ſame Nerves are put into, whilſt the reſt ſuffer little or no Ruffle at all? And what they call the mad Point in *Maniacs*, who, on other Subjects, are very reaſonable, and ſometimes very knowing, and that for whole Years; does it not

ſeem

ſeem to evince the Propriety of this Idea? Nay, is it not obſerved of almoſt all *foreign Agents* of any remarkable Vigour in the Conſtitution, that each ſeems to have ſome *latent peculiar Tendency* to affect certain Parts much more directly and ſenſibly, than others; and conſequently to affect the Nerves influencing ſuch Parts, and influenced by them, more directly and readily than others; as *Mercury* is apt to take to the Mouth, and ſalival Glands; the Fumes of Lead to affect the Bowels, and give *Colics*; the *Virus* of the *Small-Pox* to puſh at the Skin; that of the *other Pox*, to lay hold of the Noſe, and Palate; *Cantharides* to inflame the Neck of the Bladder; and ſo on of the reſt?

15. As to the obſcure, and imperceptible Action of the Poiſon of a

mad Dog; proceeding ſometimes for Weeks, Months, or Years, before it exerts its laſt Malice, and forms an *evident* Diſtemper; do not many other morbid Cauſes proceed in the ſame Way; ſilently lurking amongſt the Humours, and vitiating them for a conſiderable Time before they produce a *Fit of Sickneſs*; or ſeem to hurt any one animal Function; or even give the leaſt previous Notice of any impending Danger? May not the Reaſon of this be, that no Deviation or Degeneracy in the Fluids can ſenſibly affect the animal Oeconomy in any of its Functions, ſo as to produce Sickneſs, till that Deviation arrives at a Pitch capable of ſtimulating into Spaſms, and Conſtrictions, the Nerves, and Solids, that influence ſome of the *nobler Viſcera*? And muſt not the Fluids

arrive at a certain Pitch of Degeneracy, before they can produce ſuch *Spaſms*; unleſs it can be ſuppoſed, that their *leaſt Deviation* is capable of doing it? If it is not; and that there are intermediate Degrees between their firſt Step of Deviation, and the Pitch that Degeneracy muſt afterwards arrive at, to be able to ſtimulate theſe governing Nerves into Spaſms; does it not follow, that, before they can arrive at this *effective Pitch*, they muſt firſt, gradually paſs through all the intermediate Degrees; and, conſequently, take different Times for their Paſſage, according to the Efficacy, or Languor, of the Cauſe; the particular Turn of that Conſtitution; and various other Circumſtances attending?

16. In ſome ſtrong, foul, *Scorbutic* Habits, is not the whole Maſs

of Humours in a growing State of Degeneracy and Corruption, ſometimes for Years, and the Owner feel nothing of the matter all the while; nor ſo much as believe any one that ſhould tell him of it; but eats, drinks, ſleeps, and can exerciſe all his Functions, as vigorouſly and well as ever; till, at length, a *Fever*, or a Fit of the *Gout*, or *Stone*, or ſome other Diſtemper, ſuddenly makes its Appearance; and now gives him to underſtand, his Affairs were not quite ſo well, as he had long before imagined them?

17. *Sydenham* has remarked, and Experience confirms it, that Perſons, in all Appearance, both to themſelves and others, perfectly well, have, all at once, fallen ill of *Putrid Fevers*; ariſing, no doubt, from a precious Delinquency of the Humours;

mours; for can it be imagined, that what afterwards muſt coſt the Animal Oeconomy ſo many Pangs and Struggles to concoct, ſeparate, and get rid of, ſhould proceed only from, or conſiſt in, but the very Beginings of a Degeneracy of the Fluids? If *infiniteſimal*, or *milleſimal* Errors that way, could make us ſick, ſhould we ever be well? Is it not, therefore, probable, the Cauſe of this *Putrid Fever* muſt have been at work, gradually changing and perverting the Fluids; and perhaps ſilently nibbling among the coarſer muſcular Solids, in a ſmaller way of Spaſmules, for ſome time before the Perſon has any Feel of Diſorder; or any want of Ability; and that he only finds himſelf in a *Fever*, or *Fit of Sickneſs*, juſt when the Nerves that govern ſome *eminent Viſcera*, begin to be affected

affected with Spaſms, whether obſcure or apparent; and not before? Is not the firſt Notice, in theſe Caſes, evidently *ſpaſmodic*; witneſs the *Rigours* and *Horrors* they uſually begin with? Do not ſpaſmodic Affections accompany them, and make up no inconſiderable Part of the Diſtreſs, quite through all their different Stages? And what are the *Criſes* that happily end thoſe *Fevers*, but a ſort of general Releaſe from ſpaſmodic Strictures; by which the Conſtitution is, at length, as it were, unchained, and ſet at Liberty to expel the now ſubdued Enemy, in various foul Evacuations; what it could not have done in the Courſe or Crudity of the Diſtemper, while the Spaſms and Conſtrictions (of certain Portions at leaſt) of the nervous Syſtem, yet ſubſiſted? That *Spaſms*,

either obſcure or apparent, attend *Fevers* quite through their Progreſs, even thoſe of the moſt inflammatory Character; as well as uſher them in; and even afterwards, ſometimes, keep a ſort of Poſſeſſion, when the *Fever* and Inflammations are over; ſeems evident from this, that in *inflammatory Pleuriſies*, when, by ſufficient Bleeding, Dilution, and other means, the *Inflammation*, and *Fever* are removed, yet the *Stitch* has ſometimes continued near as preſſing as ever, till a Doſe of *Opium*, or the Application of a warm Poultice to the Side affected, ſuddenly took it off: And how could this have been, but by releaſing the Stricture? Nay, are there not *Fevers* altogether ſpaſmodic; as thoſe from *Worms*, *breeding Teeth*, and the like? And, though many kinds of Spaſms and ſpaſmodic Affections ſub-

ſiſt

ſiſt without either *Fever* or Inflammation; yet is it not probable, that *no Fever, Inflammation, or other acute Diſtemper, ever ſubſiſts without Spaſms?* Even on chronical Occaſions, do they not, ſometimes, carry on a ſort of underhand Dealings, when, and where they are the leaſt apprehended? If ſo, may not the being aware of this *latent Complication* of ſpaſmodic Affections with almoſt all Diſorders, ſerve to unravel the Myſtery of certain odd, unexpected, dangerous, puzzling, and otherwiſe inexplicable, ſudden Appearances, that ſometimes occur in many Diſtempers; as well as lead us towards obviating, in ſome meaſure, a great many of their bad Effects? An *Idea*, if I miſtake not, of no trivial Conſequence in Practice; though, perhaps, not attended to, either in Theory or

Practice

Practice, quite ſo often, or ſo much, as it may deſerve.

18. And as to the *Gout*; we may call it humoural, inflamatory, or what we pleaſe; but are not many of its common Appearances much in the nervous and ſpaſmodic Stile? Its Freaks, and Flatulences, in the Stomach; ſometimes ſuddenly vaniſhing, and as ſuddenly pinching elſewhere, upon no better Motives, perhaps, than the Patient's taking a good Dram; its almoſt inſtantaneous, and, as it were, whimſical Tranſitions, from one diſtant Part to another; its never bearing any Evacuations that ruffle; its often coming on after great Uneaſineſs of Mind; its having been, ſometimes, even frightened away all at once, when moſt teazing and troubleſome; do

not all theſe heteroclite Diſpoſitions (with others too many to enumerate here), ſeem to indicate a great deal of Vapour, Puff, and Spaſm, in the Compoſition of this Bluſterer?

19. WHERE is the conſtant Attendance, and Diſplay of ſpaſmodic Affections ſo little ſuſpected, as in the Courſe of the *Small-pox?* And yet, from the firſt *evidently ſpaſmodic* Onſet of this Diſtemper, in Rigors, Horrors, Pains, and the like (that is, from its very Commencement), they hold on, more or leſs, in an obſcure, clandeſtine, way, under various Appearances, to the very laſt. Is it not hence, that the daily Uſe of *Opium*, except, perhaps, for ſome time in the Beginning, enables ſo many to overcome this Diſtemper, who otherwiſe muſt inevitably periſh?

periſh? And the Returns of *Exacerbation*, eſpecially in the Afternoons, and now-and-then between-whiles; what are they, but ſo many Effects of recurring *latent Spaſms*; ſince *Opium* ſo happily takes them off; which muſt be, by releaſing the ſpaſmodic Strictures that cauſe theſe Uneaſineſſes; and by ſetting the Conſtitution at Liberty, to make the ſalutary Puſh it is about? Whence alſo that uſeful Advance of the *Swelling* and *Inflammation* of the *Face*, ſo often obſerved in ſome bad Turns of the *Small-pox*, after a proper Doſe of *Opium*; but from its taking off the Spaſms and Strictures, that before had tied up the animal Oeconomy, and cramp'd its natural Endeavours; which, unleſs interrupted, or ſuperſeded, are ever employed in preſerving itſelf, and in ſubduing, and expel-

ling any Enemy it may chance to harbour?

20. But to return to the latent, and ſometimes long Workings of morbid Cauſes, before they produce their Diſtempers; let me add one Inſtance more; and that is, of the *inoculated Small pox*; a Diſtemper, that, in its *Manner* of being generated, exactly reſembles the *Hydrophobia*; and, like that too, always ſneaks on in the private Way of Corruption, for ſome time, before it breaks out into open Hoſtility. The *Times* indeed of their concealed Doings may be different; but that Difference, whether of a *Week*, or a *Year*, makes none in the general Nature of their ſeveral Cauſes.

21. Sup-

21. Suppose a healthy Perſon inoculated with the *Small-pox*. He continues as well as ever, for ſix, or eight Days after: Then, all at once, he ſhall have *Rigors*, and *Horrors*, and *Pains*, and a *Fever*, and *Heat*, and *Thirſt*, and a *Turn at Stomach*, and a *Head-ach*, and ſo forth; in ſhort, he ſhall find himſelf very ſick; what he had not been the Day before; nor any other Day, ſince he was poiſoned. The Poiſon was there all along; and, to be ſure, not idle: Why then did he not grow ſick, earlier? Muſt it not probably have been, that the Poiſon could not, under juſt ſo many Days, work up the induced Degeneracy of the Fluids, or perhaps the growing *Spaſmuli* of the *coarſer* muſcular Solids, or both, to a *Pitch* ſufficient for reaching, and bringing into *more evident* Emotions, and

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ſpaſmodic Strictures, the Nerves that govern ſome of the *nobler Viſcera*? And does it not ſeem to follow, that, until the *Nerves* and *Solids* governing ſuch *Viſcera* come to be *ſpaſmodically* affected; which, it ſeems, every kind of Vice in the *Fluids* cannot; and only certain Kinds and Degrees of each, can do; there ſhall be no Perception of *Sickneſs*, or *Leſe-function* in the animal Oeconomy? Of which more in another Place.

22. If all *morbid Cauſes* exert their Influences, not abſolutely, but in a manner wholly relative to the Subjects they work in; if *Dogs* have amongſt them a great Diverſity of original, as well as accidental, and adventitious Temperaments, like *Men*; muſt not that, together with many different Circumſtances relating to the

the Manner of their own being affected, cauſe an almoſt infinite Variety in the Degrees of Virulence, or Remiſſneſs, tho' none in the *ſpecific* Nature of the Poiſon they emit? And if every Difference in the Temperaments of the human, and canine bodies concerned; with the many other concomitant Circumſtances of both, ſhall occaſion a Difference in the Violence or Remiſſneſs of the *Poiſon*, on one hand; and in the Diſpoſition to be more or leſs affected by it, on the other; is it not probable, that, whilſt this Poiſon may affect ſome Perſons in the *higheſt poſſible Degree*; it may affect others in the *loweſt*; and others, perhaps, *not at all?* Like the *venereal Virus*; which, in ſome Habits, is moſt active, and cruel; in others, it gives no mighty matter of Trouble; while ſome again have

have travelled the ſame Road of Infection without finding any, which others have gone, who both found and felt it in the ſevereſt Manner. And the *Small-pox*; does it not proceed with a ſort of peſtilential Malignity in ſome Conſtitutions; and prove gentle, and benign in others; whilſt there are, with whom it will not ſo much as take, even by Inciſion? Thus, from the *higheſt* to the *loweſt* poſſible Degrees of Infection; and from the *greateſt* to the *leaſt* poſſible Diſpoſition to be infected; how great muſt not the Variety be, of the Rage, or Remiſſneſs of the Effects of *virulent Cauſes* thro' all their intermediate Stages, and almoſt numberleſs Combinations, between theſe Extremes?

23.

23. Does it not therefore ſeem a little doubtful how far ſome boaſted Prophylactics may have been really concerned in, or what Meaſure of Credit may be really due to them for all the celebrated Preventions ſo confidently placed to their Account? Is it not probable, of Numbers who were bit by mad Dogs, and are ſaid to have been preſerved by ſome of theſe; that ſeveral may have eſcaped rather by virtue of a happy Turn of Conſtitution, and other favourable Circumſtances, than becauſe they happened to make uſe of ſuch or ſuch an unmeaning Remedy? I ſhould not wiſh to be underſtood here as if I aimed at derogating from the juſt Value of Remedies that are qualified to anſwer any rational Indication of Cure. Such Preſervatives have been tried; and, I believe, with Succeſs;

but it was moſtly, in a hit-or-miſs empirical ſort of way, without any *ſettled Indications* to guide the Preſcriber in what he was about. But the laſt dreadful Effort of this Poiſon, the *Hydrophobia*; when it once came to that paſs, all was Hurry and Confuſion. No regular Method of Practice was followed, becauſe no rational Indication of Cure was formed: The greateſt Men were at a loſs here; and all they ever produced towards the Cure, was little better than a perplexed Huddle of odd, deſperate, and ſometimes contradictory Eſſays, precipitately hazarded in an Exigence, that, from the Moment it firſt appeared, entirely baniſhed every Hope of ſucceeding. Even with the juſteſt *Indications of Cure*, there may be great Difficulty in Practice; but without any at all, there is always utter Darkneſs.

neſs. However, in ſpite of Difficulty, if we can once find Indications for Cure, 'tis ten to one we ſhall afterwards find Remedies to effect it.

24. FROM the foregoing Caſe, Queries, and Inſtances, does it not ſeem probable, that an *Inflammation* makes no original, or *eſſential* Part of an *Hydrophobia*; and that an *Hydrophobia juſt begun, and for ſome time after, be it more or leſs, whatever inflammatory Appearances it may put on, is a Diſtemper in its own Nature, not at all inflamatory, but ſimply ſpaſmodic*; like *Hyſterics*, and *Worms*, that in their ordinary Effects are confeſſedly ſpaſmodic; and ſometimes will mimic all poſſible Diſorders; even the higheſt Degrees of an Inflammation? And tho' general Maxims in Practice are ſeldom to be founded

on any one Inſtance or Experiment only; yet is one Inſtance as good as a thouſand, to ſhew whether an *Inflammation be eſſential to an Hydrophobia*; if, as was ſaid before, Diſorders cannot ſubſiſt without their *Eſſentials*, and that the Patient, now under Conſideration, moſt certainly had an *Hydrophobia* without an *Inflammation*.

25. Does it not alſo ſeem probable that the *Hydrophobia*, like the *Tarantiſm*, is a Species of *Mania*, attended, as the other is, with certain Alienations of Mind, and certain Diſorders of Body, peculiar to itſelf; and all, proceeding from irregular Spaſms, and ſpaſmodic Conſtrictions of ſome particular Parts of the nervous Syſtem, as from their *immediate* Cauſe? And is it not as probable, that all maniacal Alienations of Mind, with

with all their own ſpecific concomitant Diſorders of Body, are *immediately* educible from the ſame ſpaſmodic Cauſe, let the Cauſe of that Cauſe be what it will?

26. If the *immediate* Cauſe therefore, of the *Hydrophobia*, conſiſts in nervous Agitations, and ſpaſmodic Strictures; and that the animal Oeconomy, having ſo many of its moſt neceſſary Operations now perverted, muſt be working its own Deſtruction; ſhould not our firſt Aim be levelled at quieting theſe Agitations, and releaſing theſe Strictures? My Reaſons for conſidering the Spaſms, without taking notice of their Cauſe, ſhall be given in another Place; where, it is poſſible, it may appear not unlikely, at leaſt with reſpect to ingrafted Poiſons, that whatever

ſhall

ſhall releaſe the Spaſms, ſhall, at the ſame time, alſo remove their Cauſe: And where I ſpoke of evaporating the Poiſon, and working off virulent *Effluvia*; I only meant ſuch virulent *Effluvia* as are caſt off by the Solids, and mix with the Humours during the very Paroxyſms of theſe Diſorders.

27. THIS Diſtemper is ſo acute, and, for the moſt part, diſpatches its Affair ſo quickly, there is no Time to be loſt. The *Spaſms* muſt be allayed ſoon; at leaſt their Violence muſt; or they bring on an *Inflammation*; and if that once happens, the Caſe that at firſt was very difficult, now becomes, in all Probability, deplorable; for, the firſt Spaſms, and the new Inflammation, play a new Game of Miſchief into one another's Hands.

Hands. The Inflammation, tho' itſelf but an *Effect*, now becomes a *Cauſe*, acting in Concert with the firſt; and multiplying new Symptoms, and Dangers, perhaps beyond all Hope of Remedy. The *antiphlogiſtic* Method, ſo generally neceſſary in the Cure of inflammatory Fevers, is here of no Uſe; it is often rather hurtful in the ſpaſmodic Part of this Diſorder; and the *antiſpaſmodic* again, is moſtly too heating in the inflammatory Part: Not to add, that plentiful Dilution, without which inflammatory Fevers cannot well be ſubdued, is here impracticable; ſince the Patient, ſo far from being able to drink plentifully, cannot ſo much as drink at all.

28. In all Caſes where an Inflammation is threatened, particularly

in

in all violent ſpaſmodic Diſtreſſes, is not *Bleeding* adviſeable, and even, ſometimes, a prudent Repetition of it, if the Patient's Strength and Habit of Body can afford it. And if Bleeding is at all neceſſary, ſhould it not be our firſt Attempt on ſo head long an Occaſion as the *Hydrophobia*, where, generally ſpeaking, there is either a *real*, or a *ſpurious* Plethory; either too great a Fulneſs of the Humours, that elbows out their containing Veſſels, and over-diſtends them out of their *natural* Tone and Play; or without any Exceſs of Quantity in the Fluids, the Preſſure and Difficulty will be nearly the ſame, if their containing Veſſels are thrown into convulſive Strictures that cramp them inwards, ſo as to confine the Fluids within narrower Chanels than it is natural for them to move in.

Either

Either way, the Circulation muſt labour, and the animal Oeconomy ſuffer; and *Bleeding* ſeems indicated in both; but with this material Difference, that, in the firſt, where the Quantity is ſuppoſed to exceed, the *Bleeding* ſhould be proportionably large; but in the latter, where there is no ſuch Exceſs, and the Fluids only want ſufficient Room to flow in their now contracted Veſſels, that Evacuation ought to be proportionably moderate; juſt what may ſerve to eaſe the Remainder, and no more: In a Plethory too, from mere Rarefaction, our Bleedings muſt be more ſparing too.

29. After all, may not there be Conſtitutions ſo low, languid, and cold, as ſhall ſcarce admit of bleeding at all, unleſs ſome inflammatory

Accident ſhould manifeſtly require it? And would it not be a pernicious Error to bleed ſuch Perſons *largely*, in the firſt Hours, perhaps, of an *Hydrophobia*, upon an unfortunate Preſumption of its being not only *always* an *inflammatory Diſtemper*; but *always* ſo, in the moſt *acute* Senſe; that, in which Inflammations of the larger Membranes muſt *ever* be conſidered? In ſpaſmodic Caſes of ſuch a *Genius*, muſt not Bleeding be much more likely to haſten the Death, than forward the Cure, of a Patient? The learned and ingenious Dr. *Hoadly* once told me of a Woman he had ſeen, who, ſome Days after ſhe had been bit by a *mad Dog*, died away, in all Appearance, of mere Weakneſs and Languor: But Inſtances of this Kind ſo very ſeldom occur, they ought to be look'd upon

rather

rather as Exceptions to a general Rule, than as a Rule themſelves to proceed by, in our Endeavours for others: However, ſome Caution in this Article of Bleeding in ſpaſmodic Caſes is the more neceſſary, as they ſo frequently exhibit Appearances that ſeem highly inflammatory, where yet there may be no Inflammation: Witneſs the *Fevers*, *Heats*, *Thirſt*, *Ravings*, *Stitches*, and other alarming and equivocal Symptoms often cauſed by *Worms*, *breeding Teeth*, and ſuch-like ſtimulating conſtrictive Cauſes? The State of the *Tongue* ſeems for the moſt part to be our trueſt Monitor either of the Preſence, or Abſence of an *Inflammation*, on moſt of theſe Occaſions.

30. After ſufficient Bleeding, ſhould not our Calmers, and Anti-

ſpaſmodies immediately take place, in larger Doſes to be occaſionally repeated according to the Exigence, and to the Effects we ſtill find what was already given, or done, may have produced? And for the *Medicines*, is it not an Affair of common Prudence, in general, to prefer *Musk*, the two *Cinnabars*, and *Opium*; they having, from juſt Indications, ſo happily acquitted themſelves on a like Occaſion already? or, *Opium*, *Musk*, *Aſa-fetida*, and *Camphire*; as the *Musk*, *Aſa-fetida*, and *Camphire*, ſo ſpeedily relieved this Patient, when her Diſorder and Spaſms were renewed by ſeeing the Perſon who had frighted her, ride along at a Diſtance; Spaſms, that in every Appearance were like the firſt virulent ones; but that they were not attended with the *Dread* of *Water*; though very probably,

bably, on the Renewal, they were but *mere Hyſterics*, as a Diſpoſition to be ſpaſmodically affected from almoſt any Shock, or other ordinary Cauſe, might have remained perhaps long after in ſuch Parts of the nervous Syſtem as had been moſt agitated and weakened before; and had not, as yet, quite recovered their Tone.

31. The Medicines now moſtly taken, and by Experience found of moſt general Efficacy in ſpaſmodic Diſorders, are, *Opium*, *Muſk*, *Aſafetida*, *Camphire*, *Wild Valerian*, *Jeſuits Bark*, *Caſtor*, *Miſletoe*, *Snake-root*, *Rue*, *Garlick*, the *Fetid Gums*, *Salt* of *Ember*, *Salt* of *Vipers*, the other *volatile Salts* and *Spirits*, *Amber* in Subſtance, *Earth-worms*, *Peony Roots*, *Pulvis de Gutteta*, the two *Cinnabars*,

nabers, and many more: And may not ſome Conſtitutions, and Caſes occur, where almoſt any thing ſhall accidentally releaſe Spaſms?

32. As to *Opium*; ought that known Compoſer both of the Mind and Body, to be ever omitted in a Diſorder where both are ſo eminently agitated, and diſtreſſed? It allays the Spaſms, and therefore compoſes the Mind. Is it not likewiſe well worth remarking, that of the few upon Record who have ſurvived this Calamity, it will appear that *Opium*, in one Shape or other, was given to moſt of them? Nevertheleſs, as human Nature produces ſo great a Variety of Temperaments, each attended with *Idioſyncraſies*, or certain complexional Peculiarities which make thoſe Conſtitutions, as it were, whimſically

ſically diſaffected to ſome Medicines that are often found ſerviceable to others in like Caſes; is it not therefore neceſſary to make Inquiries; and not inſiſt either on *Musk*, *Opium*, *Aſa-fetida*, *Camphire*, or any other particular, or ſuppoſed, *Specific*; but among the Antiſpaſmodics, to recommend ſuch as may be moſt likely to agree with each particular Conſtitution; an Eye ſtill had to its paſt Diſpoſitions?

33. WITH regard to *Muſk*; is not its great Value, when given in ſufficient Doſes, now pretty generally allowed in ſeveral ſpaſmodic Diſorders? Though, for the *two Cinnabars*; I confeſs I am far from being able to determine what Part they really had in the Cure now before us. They are Allayers of Spaſms in

verminous

verminous Caſes; but that, I ſuppoſe, ariſes from their deſtroying or diſlodging the *Worms*; or perhaps from their helping to diſſolve, and looſen that clinging, ſtale, putrid *Mucus* thoſe Creatures uſually neſtle in; which kind of *Mucus*, ſometimes without *Worms*, ſhall raiſe all the troubleſome Symptoms that *Worms* or almoſt any other Cauſe can poſſibly excite. The *Cinnabars*, like the *Ethiops mineral*, no doubt poſſeſs ſome good Qualities; but what they contributed in our Caſe, I cannot ſay; I only propoſe, whether they ought not to be retained ſtill along with the *Muſk*, and *Opium*; ſince we can never be ſure *à priori*, from the Genius, or common Actions of any Medicine, either ſimple, or compound, what Effects it ſhall really have when compounded with others:

'Tis

'Tis Experience muſt always decide that; beſides, as we ſee virulent Cauſes have each their latent Tendency to attack certain Parts, as it were preferably to others; may we not ſuppoſe the Antidotes have each their partial Tendency as well? And here, we have experienced what the whole Compoſition of the *Muſk* and *Cinnabars* could do. This Medicine was firſt brought into *Europe* from the *Eaſt-Indies* by Sir *George Cobb*, Bart.; to whoſe Humanity in publiſhing it, the World is indebted for one of the nobleſt Hints it ever received, in one of the moſt calamitous of all the Accidents human Nature is liable to.

34. ALTHO' the Sickneſs at *Stomach*, as well as ſome other Ails attending

tending this horrid Diſorder, ſeem not to be ſo much the immediate Affections of the Parts themſelves, as ſpaſmodic Sufferings from a remoter nervous Connexion; ſtill the Sufferings from this Conſent ſoon pervert the natural Functions of the Parts thus affected; and the *Stomach*, on all theſe Occaſions, partaking more than moſt other Parts, it ſoon breeds a great deal of heavy, loathſome *Phlegm*; The whole Tract of the Inteſtines muſt take Share of the Evil too, though in a leſſer Degree: However, as to the Affair of Vomits, conſidering theſe Stomach-Diſorders are not original, or *idiopathic*, does it not ſeem right to decline the giving *Vomits* in an *Hydrophobia*, unleſs a conſtant Reaching, and Diſcharge, ſhew it may be abſo-

abſolutely neceſſary to waſh the Stomach a little; and if ſo, ought it not rather to be with ſome agreeable ſofter Liquor, than any thing that ſhould nauſeate, and irritate; or throw a Part already but too much diſtreſſed with Spaſms, into yet more Spaſms, and Diſtreſs? Whence are the dangerous, and ſometimes fatal Effects of drinking cold Water, or taking a Vomit, immediately upon a violent Fit of Anger; but from an Addition of Spaſms they bring upon a Part that is agitated already; as the *Stomach* very often is, when the *Mind* is greatly, and ſuddenly moved? For this Reaſon, I think the *Turpeth* Vomit, I intended for my Patient in caſe her Stomach had continued ſo much diſorder'd, that ſhe could not have taken her Medicines, was ill judged. I was pleaſed ſhe had not taken it;

and ſtill better pleaſed, that the Occaſion for taking it, ceaſed; but what indeed may ſerve, in ſome ſmall meaſure, to excuſe this Step, as well as that of the *antimonial Glyſter*, a Medicine, in its own way, equally irritating and improper, was the large Courſe of *Opium* ſhe was in at that Time, which I ſuppoſed, would have made ſuch *Stimuli* but neceſſary to produce even the *ordinary* Effects. But I am now ſatisfied gentler Meaſures would have been more of a piece with the main Indications of Cure; and I take this Opportunity of publiſhing it, by way of Caution to others, that, if they pleaſe, they may avoid ſlipping perhaps into the ſame Error themſelves.

35. As to Purges in this Caſe, Do there ſeem to be any Indications

for them? The firſt Effect of purging Medicines is, in ſome Degree, to irritate the Stomach; and ought not that to be as little ſtimulated as poſſible amid ſo general a Confuſion; ſince, of the whole animal Oeconomy, there is ſcarce a Part has ſo many great Connexions, or ſo great a Variety of remarkable Influences?

36. The lower Parts of the inteſtinal Tract, as was already hinted, partaking of the common Evil, tho' in a leſſer Degree, may be apt to prove either too quick, or too ſlow on theſe Occaſions. Being too ſlow, was the Condition of *Elizabeth Bryant*; and may poſſibly be that of moſt other Perſons under the Influence of virulent Spaſms; except when Poiſons are taken into the Stomach; or that the *partial Diſ-*

poſition

poſition of the virulent Cauſe, or Agent may happen to tend more directly to the Inteſtines; as in *Tobacco*; which, though it is not accounted a Poiſon, yet ſeems in many reſpects to proceed very like one: When People firſt try it, let it be in what Dreſs it will, they for the moſt part find themſelves quickly ſeized with a *Dizzineſs*, and *Sickneſs*; with *Languors*, *cold Sweats*, and the like common Symptoms of a *Spaſmodic Ruffle* in the *Primæ Viæ*, which uſually go off with a Stool, and ſometimes by Vomiting; nay, applied to any Part of the Skin, its Effects, in ſome, have ſhot directly to the Inteſtines, and produced a Sort of Agony conſiſting of the above Symptoms. In the *Hydrophobia*, if the Conſtitution proves too remiſs, and the Inteſtines ſeem to neglect their

Office,

Office, ſhould not *Clyſters* be ſometimes uſed, at reaſonable Diſtances, to help Nature, and relieve the Patient? and only ſuch, as may juſt anſwer, and be at the ſame time as little ſtimulating as poſſible? For Clyſters have been ſometimes found to produce very undeſirable, troubleſome Effects, in ſome ſpaſmodic Caſes; particularly in ſome kinds of *hyſteric* Affections; which may be a Reaſon, why they ought to be ſomewhat the more cautiouſly adviſed in the *Hydrophobia*.

37. What Effects *Bliſtering* may have, I know not. Perhaps it may have good ones in certain languid, depreſſed Caſes, when ſeldom they happen; but, in all that aſſume a more explicit and violent Character, are they not to be ſuſpected? What-

ever little, the Diſcharge of Serum, and what comes after, may contribute (and very little that can be), may not the firſt Action of Bliſtering-Plaiſters be too ſtimulating, where ſo many ſtrong Spaſms and Strictures are on Foot already?

38. With regard to *diaphoretic*, and *diuretic* Intentions; is it not obſerved, in almoſt all ſpaſmodic Diſorders, that *Sweating* is the Diſcharge unaſſiſted Nature ſeems moſt inclined to procure, for the Relief of the Diſtreſſed? What ſo happily aſſiſts in the Releaſe of Spaſms, or ſo frequently denotes their Releaſe, as gentle Sweating? There are agonizing, *ſymptomatic* Sweats, that are, as it were, ſqueezed out by dint of Oppreſſion and Diſtreſs; but the *critical* are produced by the kindly Workings

of

of an animal Oeconomy relieving itſelf, and overcoming the morbid Cauſe of its Oppreſſion: The firſt is always a Symptom of Danger; the latter, a Sign of Amendment; and a *Vehicle*, in which the Conſtitution diſincumbers itſelf at a Million of Outlets. Doctor *Mead* obſerves, that Sweating has been often experienced to cure in the Bite of a *Viper*; and what cures the *Tarantiſm*, but Sweats produced by dancing? Nay, are not our principal *Antiſpaſmodics*, for the moſt part, remarkably diaphoretic? The other Diſcharges, no doubt, ſerve in their Turn, ſometimes: In ſome Colics, the morbid Stimulus acting in the *Primæ Viæ*, ſolicits an Evacuation of their Contents, as the Outlet neareſt at hand, and moſt convenient, the Cauſe uſually lying there, or

thereabouts; but when the Spaſms proceed in Parts far removed from theſe Outlets, in ſome of the inmoſt Receſſes of the animal Oeconomy (as in virulent Caſes, not confined to the *Primæ Viæ*, they always do); are not Perſpiration and Sweating the moſt likely, as indeed they are the moſt uſual, Methods of Nature to releaſe them by? And muſt it not be rather from Accident, than conſtitutional Choice, that Nature, in theſe deeper Caſes, ever uſes any other Means? Some of the ſlower, and leſs active Kinds of morbid Cauſes in the Fluids, have been wrought off by the urinary Paſſages; and ſometimes perhaps ſome of the more volatile; but is not this a particular, confined, and coarſe Secretion, when compared with that by the *cutaneous Outlets?* And its Supplies,

are they not chiefly from one ſmaller Quarter only of the animal Oeconomy, the *emulgent Arteries*; whilſt the cutaneous Supplies are inceſſantly adminiſtred from the greateſt Part of the whole arterial Syſtem almoſt all at once? The Inſufficience of the groſſer Diſcharges, when morbid Cauſes have got Footing in the Habit, has not eſcaped the Penetration of *Sydenham*, who diſtinguiſhes between the two Kinds of theſe critical Evacuations; and calls the coarſer *per Fæces*, the finer *per Flores*. It is true, Sweating is no natural Evacuation: It is always a forced Affair one way or other. Whilſt every thing holds as it ought to be, the animal Oeconomy does not want it; and it muſt ever be ſome Degree of Oppreſſion, ſomething that is not altogether right, that cauſes it:

But then it ſeems contrived for a *Succedaneum* to all the others: It is their faithful, tho' alien, Handmaid; ever in the Way, and ever ready to anſwer their ſeveral Occaſions, and ſupply their various Defaults; which, whenever it fails to effect, theſe Defaults, in moſt Conſtitutions, ſoon amount to a Fit of Sickneſs: And this is probably the Reaſon why, in ſome hotter Climates, People no ſooner find the Diſpoſition to Sweating ceaſe, than they find the Diſpoſition to Health ceaſe along with it.

39. As to ſuch Plungings into cold Water, as have been ſo ſtrenuouſly adviſed, and ſo often practiſed in the *Hydrophobia*; I have only to inquire, whether, upon a Suppoſition of its being an inflammatory Diſtemper, as the Notion almoſt univerſally runs;

runs; and not only ſo, but that its Inflammations, and the Fever that attends them, muſt be of the moſt acute, and precipitate Character, as the Inflammations of larger Membranes, ſuch as thoſe inveſting the *Fauces*, *Throat*, *Oeſophagus*, and *Stomach*, always are; Whether, upon an Aſſurance of the Preſence of any ſuch *Inflammations*, or *inflammatory Fevers*, the *cold Bath* was ever yet practiſed, or ſo much as propoſed, except in this unfortunate Caſe of the *Hydrophobia* alone? Was it ever adviſed in the Progreſs, and Diſtreſs of an inflammatory *Quinſy*? or in thoſe of a violent *Pleuriſy*? or *Hepatitis*? or in a *Nephretic* Inflammation? in one either of the *Stomach*, or *Bladder*? or, in that of any other more delicate, or neceſſary Organ of the whole animal Oeconomy? If

not

not; and that in theſe ſeveral Inflammations, the cold Bath ought to be religiouſly avoided, as a Step the likelieſt imaginable, either to deſtroy the Patient in the very Operation, or to fix his Diſtemper beyond every Poſſibility of Redreſs; is it not with equal Reaſon to be avoided, and abhorred in juſt the ſame Kinds of Inflammations ſuppoſed to attend the *Hydrophobia?* And the additional Frights, and Threatenings, which ought, they ſay, to accompany theſe cold Immerſions; what is that, but to multiply Terrors in order to cure them? For are not theſe very Terrors a main Part, nay the *chief characteriſtic Symptom* of this maniacal Diſorder?

4o. AGAIN, if we ſuppoſe it purely ſpaſmodic; and the Symptoms

toms, as they always are, very great and preſſing; what are we to expect from cold Bathing? Are not the firſt Effects of being dipped in cold Water, ſpaſmodic? a ſort of univerſal Conſtriction? And may not that, in Addition to the other ſtrong ones now already at work, cauſe one general Spaſm never to be releaſed; and fling the unhappy Patient into his laſt Convulſions? Is cold Bathing proper in the Article, and Agony of a ſtrong *Hyſteric Fit?* Might it not, in the Height of ſuch a *Paroxyſm*, do irreparable Miſchief? What better then can be hoped from it in that dreadful ſpaſmodic Paroxyſm of the *Hydrophobia?*

41. BESIDES, is not this Diſorder evidently *maniacal?* and has not every maniacal Perſon, what they call,

call, *his mad Point?* Some Idea, ſome Subject, which, whenever it is touch'd upon, *always* gives him great Diſturbance, and always enrages the Diſtemper? In order to the Cure of ſuch Maniacs, ought not that *Point* to be nicely avoided; ſince the oftener they are agitated that way, the deeper will the wrong Impreſſion ſtill be made; and the harder it muſt be to cure them? In the *Hydrophobia*, is not *Water*, let what will excite the Idea, and the unreaſonable Averſions, and vain Terrors it creates, the *main Point* their Madneſs chiefly turns upon? Are not our *Water-dippings*, therefore, a ſort of Medicine, which, inſtead of ever allaying, muſt conſtantly aggravate the Diſtemper in its *very Eſſence*, by rouſing up all its horrid Symptoms afreſh, as often as it is, either uſed, or even

ſo

ſo much as named? So that, if any were ever cured of an *Hydrophobia*, by cold Bathing, or any other Water Trials, as has been pretended, it was an Eſcape, rather than a Cure; and muſt have been by Accident; as a Man was cured of his Lameneſs by falling from the Top of an Houſe. Thus, take the *Hydrophobia* in whatever Light you pleaſe; whether for inflammatory, or ſpaſmodic; for a Madneſs, or a mixt Diſtemper; it has ever been its Fate, to be treated in a manner not only inconſiſtent with its own Genius, but differently from what any other Diſtemper under the ſame reputed Circumſtances ever yet was; ſuch is the Perplexity a Want of *true Indications of Cure* always creates, whenever a Diſorder happens to be unluckily connected with this Misfortune. Upon

the Whole; is it not highly probable that neither *Bleeding*, nor *Vomiting*, nor *Purging*, nor *Glysters*, nor *Vesicatories*, are to be practised in the Cure of an *Hydrophobia*, otherwise than *pro re nata*; with a perpetual Exclusion still, of all Attempts of curing it by Water; at least in any of the Methods that have as yet been ever recommended to the World?

42. Now as to *Prophylactics*, or Means of preventing the *Hydrophobia*, in such as are bitten by mad Dogs; it has been already observed, that, notwithstanding the great Variety of Symptoms caused by various Poisons; there is still a remarkable Analogy between their general Manner of acting, and proceeding, in the human Body: Here we have only to do with such as are received into

ſome fleſhy Part, either by Application, Puncture, or Inciſion; particularly with that of the Bite of a *mad Dog*. Thus are the Poiſons of the *Viper*, and *Tarantula*, uſually received. Thus the Virus of the *inoculated Small-pox*; and that alſo of the *Great-pox*, when taken in the common Way: all are communicated pretty nearly alike; and all, moſt certainly go to work the Moment they are communicated; but their firſt Workings, probably as being weaker, and exercised only in leſſer Spaſms, or *Spaſmuli* among the muſcular, and fleſhy Parts, cauſe no Sickneſs, or Læſe-function in the animal Oeconomy *. Do not ſmaller Mortifications that begin at the Extremities, or among the outward Muſcles, uſually proceed in ſomewhat a like

* See Qu. 21.

like Manner, without Trouble, or Sickneſs to the Patient, for ſome time, even for Days, before their Malice is propagated to Organs of more Eminence; which no ſooner happens, than Sickneſs, and Danger preſently enſue? And do not all theſe virulent Cauſes that take their Riſe among external, coarſe, and fleſhy Parts, take their different Times, each according to its own Genius, of pioneering in an obſcure, inſenſible, and ſeemingly harmleſs Manner in the Habit, before they come to ſpring their ſeveral Mines, and openly declare themſelves the formidable Enemies they really are? The Virus of the inoculated Small-pox we have already traced a little, in the Courſe of its firſt private Operations; and they take up ſome Days before the Perſon inoculated finds

himſelf in the leaſt affected, or ſick.* The venereal Virus has its own Time, of weaker, and unfelt Action, too. That of the *mad Dog* lurks to all Appearance altogether innoxious for Weeks, Months, or Years; although it is not *quite* idle for a ſingle Moment of the whole Time. Thoſe of the *Viper*, and *Tarantula* are quicker; but ſtill, like the others, they have each their own Times of ſmaller inſenſible Proceeding, and Piddling, before they come to open Action; and although theſe Times were to be computed but by Half-hours, or Half-minutes, as was hinted in another Place, yet the general Analogy in their Manner of operating holds juſt the ſame: Even in that of the *Rattleſnake*, which is ſaid to kill ſometimes in leſs than half a Minute, we may, not-

* See Q. 24.

notwithſtanding its Rapidity, conceive a ſimilar Difference between its *firſt*, and *laſt* Effects in the Body that receives it. Now ſince it is only during this firſt, underhand, weaker Action of theſe ſeveral virulent Cauſes, that *prophylactic*, or preſervative Remedies can find Place; let us ſee what *Prophylactics* have anſwered after the Punctures of other poiſonous Animals; and how they have anſwered; and that, poſſibly may lead us to Methods of equal Efficacy to prevent an *Hydrophobia* after the Bite of a mad Dog.

43. FROM what hath been elſewhere remarked, is it not probable that the great Difference between the firſt obſcure, inſenſible Action of all inoculated Poiſons, whilſt as yet People find themſelves well; and their laſt

laſt more evident, and ſenſible Exertions when People find themſelves ſick, and in Danger, may conſiſt only in this; that, whilſt theſe morbid Cauſes, particularly ſuch as are virulent, continue to nibble only amongſt the coarſer Fibres, and Filaments of the *Membrana cellulosa*, where they are firſt inſerted; the ſtimulating Action of the Virus, as yet weaker, and more confined, produces but ſmaller, inſenſible Strictures, and Spaſmuli, among thoſe coarſer Solids; and ſo continues to proceed, as it were, ſilently, and unfelt, until it cauſes Swellings, Inflammations, and Pain, tho' as yet no Sickneſs, or immediate Danger, until gradually propagating, it comes to advance ſo far as, at length, to reach ſome of the nobler Organs, that are more immediately ſubſervi-

ent

ent to Health and Life; or rather, comes to affect ſuch Parts of the nervous Syſtem as *immediately* govern theſe *nobler Organs* (which, pretty nearly, ſeems to be the Caſe too, and Manner of Procedure, in the little creeping *Mortifications* before taken Notice of); that then, and not before, the Face of Affairs begins to change: What were but *unaffecting*, and ſometimes *inſenſible Spaſmuli* in the Fleſh, become *evident*, and *dangerous Spaſms*, among the nobler *Viſcera*; the Symptoms now multiply; the Patient finds himſelf ſick; and the Diſtemper becomes explicit, and alarming: Nay, is it not probable, whatever the Condition of the Fluids may be, that there cannot be ſo much as a *Feel* of Uneaſineſs in the whole animal Oeconomy, until the Solids come either to be over-diſ-

tended,

tended, or ſpaſmodically affected? Is it not alſo probable, that they may in ſome Parts of the Body be affected with Spaſmuli, and not cauſe the leaſt Pain? And, that to produce *Sickneſs*, ſome of the Nerves governing one or more of the *nobler Organs*, muſt be firſt thrown into Spaſms?

44. THERE are certain Oils, ſuch as thoſe of *Scorpions*, and *Vipers*, that are held to be ſpecific in the venomous Punctures of theſe Animals: But is it not probable that the Virtue theſe Oils chiefly do this Service by, conſiſts not in any peculiar, or ſpecific Quality they poſſeſs, as belonging to this or that Animal; but in their being ſoft, unctuous, relaxing Subſtances; and therefore likely to ſooth, and releaſe ſuch little conſtruc-

tive Spaſmuli as begin to be excited at the Parts bitten; and are now at Work, and making their Way along the *Membrana cellulosa?* If ſo; may not this early Soothing and Releaſe of them, *for ever* hinder any farther Propagation of the Evil to other more ſenſible, and eſſential Organs, of which, the Spaſms, as was before obſerved, are always more diſtinct, violent, and concluſive?

45. A Perſon, for Inſtance, is bit on the Hand by an *enraged Viper*: This is a coarſe muſcular Part, and not *immediately* ſubſervient to Life: That Hand, after a while, begins to ſwell; and the Swelling is gradually communicated to the whole Arm. Theſe are but ordinary muſcular Parts ſtill; and the Perſon bit, tho'

he may feel ſome Pain in that Hand, and Arm, nevertheleſs finds no real conſtitutional Ail, Sickneſs, or Loſs of Strength. Hitherto, and perhaps for ſome time after, the Uſe of one or other of theſe *Oils* ſhall effectually put a Stop to the Evil, and it ſhall never proceed further. But ſuppoſeing no Oil uſed: As ſoon as the Hand, and Arm ſhall have ſwelled to a certain Degree, the Patient begins to be faint: Now, it ſeems, the Effects of the Poiſon have crept ſo far as juſt to touch upon ſome Parts of the nervous Syſtem that govern the Operation of certain Organs, which, both to Health, and Life, are of much more Importance in the animal Oeconomy, than the Hand, and Arm, or than the Parts of the nervous Syſtem that govern the natural

Motions of either; for it has been remarked before, that ſome Parts of the nervous Syſtem may be affected without affecting the reſt: As yet Things ſeem to go on ſomewhat calmly, and without any manifeſt Appearance of Spaſms, or Danger; and the Oils, as yet, may do Service; but ſoon after this, our Invalid finds a *great Sickneſs at Stomach*; he has bilious *convulſive Vomitings*, and *cold Sweats*; and ſometimes, as Dr. *Mead* obſerves, Pains about the Navel; and if the Cure is not ſpeedily effected, *he dies*. Thus, has this Proſpect been clearing up at every Step, from the loweſt Degree of the firſt obſcure, and almoſt imperceptible ſpaſmodic conſtrictive Emotions, as it were creeping, and concealed among the Muſcles, to their laſt more vio-

lent, and more evident ſpaſmodic Efforts among the nobler Organs. But though ſuch latent Spaſmules as happen confined to the muſcular and fleſhy Parts do not *immediately* bring on either Sickneſs, or Danger; yet they ſeem very well qualified to diſtreſs that Branch of the Circulation they work in, ſo as to produce Swellings, Inflammations, &c.

46. With regard to the Swelling of the Hand, and Arm, that enſues upon this Bite; let us ſee, how it ariſes; how it proceeds; how far the Fluids are concerned; and how far the Solids? In theſe abſtruſer Caſes, it is only by obſerving the Diſtemper in its firſt Seat, or Cradle; and by endeavouring to purſue it afterwards, with an Eye to its Move-

ments,

ments, Stages, Acquiſitions, and Events, that we can be able to form a juſt Idea of its Nature; or diſcover fit Expedients for ſuppreſſing its Effects. This venomous Swelling then, muſt undoubtedly ariſe from ſome new, ſudden Reſtraint put on the Circulation at the Part bitten: This Reſtraint, muſt it not proceed from ſome new Failure, induced either in the Fluids, or Solids, or both? The Fluids, it is true, are invenom'd at that Spot; but does that make them thicker, fizier, or leſs capable of being freely propelled along their ſeveral Veſſels than they were juſt before? Is not the Notion of their ſudden Coagulation from poiſonous Cauſes, now a good deal laid aſide, and juſtly? If therefore the Fluids are as fit for Propulſion, and Circulation, as they were before the Punc-

ture;

ture; what can ſuddenly reſtrain the Circulation here, but ſome new morbid Affection impreſſed on the Solids by the virulent Stimulus? And how can that Stimulus effect it, but by irritating the finer nervous Filaments at the Part, out of their own natural, calm Tenor of Oſcillation, into preternatural, unequal Emotions, and ſpaſmodic Strictures? Is it not thus, that Stimuli of all kinds bring on Obſtructions, Swellings, and Inflammations; the irritated Capillaries, and containing Veſſels are ſo thightly drawn in, and cramped, at ſome Parts, that the Fluids cannot freely paſs along, as they did before; whilſt of the ſame Veſſels, the Portions that lie next before, are too much diſtended, often beyond their natural Capacity; as every diſtractile Tube, the more forcibly

cibly it is ſtretched out in one Part, the narrower will it be ſhrunk in at another; and though it is ſaid, that Stimuli always bring a greater Flow of Humours to the Parts they act in; yet the Swelling, and Inflammation of the Arm that enſue upon receiving the Puncture of a Viper, are they not rather produced, becauſe the ſpaſmodic little Strictures of the capillary Veſſels will not ſuffer what is ſent thither in the natural Courſe of Circulation, to paſs off as faſt as it comes on; ſo that the retained Difference muſt ſtill gradually accumulate to a Swelling?

47. THUS we ſee how the poiſon'd Stimulus has drawn the Nerves, and Solids into little morbid Vibrations, and convulſive Strictures, at the invenom'd Spot: But how theſe

diſorderly Vibrations, and Strictures are kept up afterwards, and propagated ſo deliberately, and regularly; firſt among the Parts all round that Spot, and thence to the moſt intereſting Parts of the animal Oeconomy, is an Article worth conſidering. Some time then, after the Bite, a ſmall Swelling appears: This Swelling increaſes by little and little; and the Solids are gradually diſtended: when this Diſtention arrives at a certain Degree, an Inflammation begins; and the Swelling, with its new Acceſſory the Inflammation, proceeds to augment, and gain Ground, till they come, at laſt, to take Poſſeſſion of the whole Arm, with a Part of the Neck, Breaſt, and Back; and all this, very regularly, and without Deviation, juſt in the Order of the immediate Contiguity of theſe Parts,

from the firſt Point of Infection, to the uttermoſt Limits of the pectoral Muſcle. As hath been already obſerved, no new Unfitneſs for Propulſion in the Fluids is ſuperinduced by the Poiſon received. That the Blood is never the Part immediately concerned in theſe virulent Caſes, is now pretty generally allowed; and better Reaſons for the Allowance cannot be given than thoſe we have from Dr. *Mead*, when he ſays *, "I was of Opinion when "I firſt wrote theſe Eſſays, that the "Effects of Poiſons, eſpecially thoſe "from venomous Animals, might be "accounted for, by their affecting "the Blood only: But the Conſide-"ration of the Suddenneſs of their "Miſchief, too quick to be brought

* Mech. Account of Poiſons; Introd. p. 40. Ed. 1747.

"about

" about in the Courſe of Circula-
" tion (for the Bite of a Rattle-ſnake
" killed a Dog in leſs than a Quar-
" ter of a Minute), together with the
" Nature of the Symptoms *intirely*
" *nervous*, induced me to change
" my Opinion". Theſe Conſide-
rations are juſt; and ſeem to make it more than probable, that the untoward Symptoms brought on by poiſonous Agents can never be produced by their affecting the Blood: But as theſe Caſes are *intirely nervous*, and that the animal Spirits are the Fluid thought to be chiefly concerned in nervous Affections, let us ſee, from what we can gueſs of the Nature of theſe Spirits, and what we know of the Effects of virulent Cauſes, how far the Properties of the one may ſerve to account for the Procedure of the other.

48. The Nerves, and nervous Filaments and Solids, are agitated by poiſonous Cauſes. This has been obſerved already: But theſe little convulſive Agitations *firſt* excited by the Poiſon of a Viper juſt at the Part bitten (I ſpeak here, of the Hand); do they not *afterwards*, for ſome Minutes at leaſt, prove a little too deliberate, and regular in their Progreſs, to be ſuppoſed the immediate Effects of *poiſoned*, or *enraged animal Spirits*? The Swelling, Inflammation, and other Symptoms, are more deliberate ſometimes, in their unnatural Progreſs from the Spot firſt invenom'd, to their Arrival at the main Trunk, than *Turpentine* or *Aſparagus* are in their natural Paſſage from the Stomach to the Bladder. Can ſuch an orderly, and ſlower Kind of morbid Proceſs, as we have juſt now deſcribed

ſcribed in the Poiſon of a Viper, which ſometimes will take up Half-hours, or Hours, be the Work of *infected* animal Spirits? Are not the Fineneſs, and Agility of theſe Spirits, almoſt inexpreſſible? And the Communication they muſt needs hold with every Part of the animal Oeconomy, both Fluids and Solids, irreſiſtable? Are they not reckon'd Partakers of all the moſt diſtinguiſhing Properties of *Electricity*, *Lightning*, *Light*, *Æther*, the *univerſal Elaſtic Matter*; and whatever elſe we can imagine moſt ſubtil, penetrating, and expeditious? Several great Men have held this; and poſſibly with good Reaſon: Dr. *Mead*, ſpeaking of the Manner in which the animal Spirits when infected carry Poiſons into the Habit, ſays *; " This is done by the great

* Mech. Account of Poiſons; Introduction, p. 30.

" Acti-

" Activity of the nervous Fluid;
" *one Part* of which being infected,
" *immediately* taints *all the rest*; and
" thus, the *whole* System of nervous
" Expanſions is drawn into Spaſms,
" and Convulſions". If this be ſo,
doth it not ſeem to follow pretty
clearly; ſince the whole System of
nervous Expanſions is never *immediately* drawn into Spaſms, and Convulſions, when People are bit by enraged Vipers, that the animal Spirits muſt be altogether out of the Queſtion, and not tainted in *any Part*; not even at the very Spot of Infection? Inſtead of that, there are no evident Convulſions, nor is there any Want of Senſe, or Reaſon, till towards the later Stages of the Diſorder; all which muſt neceſſarily enſue whenever the *whole nervous Syſtem* is thrown into *Spaſms*; or even but *certain Parts* of it. 49.

49. THIS prodigious Elaſticity, Velocity, and Irreſiſtibility of the animal Spirits; with the univerſal ſudden Flutter, and Accenſion, they are deemed liable to, whenever *any one Part* of them is infected; do they not alſo prove that *no Part* of them is infected, when People are bit by mad Dogs? There is Poiſon left in the Wound on that Occaſion; and there are animal Spirits too at the Part; becauſe the Bruiſe, Puncture, Scratch, Wound, or whatever elſe it is, is ſtill felt at the Time; ſo that the animal Spirits muſt undoubtedly both meet, and mix with the Poiſon; and yet, the *whole nervous Syſtem* is not *preſently* drawn into Convulſions; neither is the Perſon, who is wounded, made any way uneaſy in Body, or Mind, farther than what juſt proceeds from the Soreneſs of the Wound; or

the

the reaſonable Apprehenſions he may be under, about the Event of that Accident; all which ſeems to acquit the animal Spirits; and ſhew, that however they may perhaps be Acceſſaries, they never can, without firſt unſpiriting them, be made Principals in the more deliberate earlier Parts of the Miſchief that ariſes from thoſe Cauſes. Together with what is inferrable from the firſt regular ſlower Procedure, and *partial* Effects of theſe Poiſons, whilſt they act only amongſt coarſer muſcular Parts (a Procedure, and Effects, utterly inconſiſtent with the univerſal, irregular Exploſions of animal Spirits that are *infected*); do not the *partial Maniæ* of ſome, who for Years are very ſenſible, and knowing in many Things, but ſtark mad in others, ſhew, that it is impoſſible that the animal Spirits, which are perpetually

tually interfering with, and affecting every Part of the animal Oeconomy, eſpecially the nervous Syſtem, ſhould be their *immediate* Cauſe? Muſt we not, therefore, look for theſe Cauſes, rather in the Nerves themſelves? Theſe are not always running about like the animal Spirits, and mixing with every thing; but remain *ſtationed for Life*; each, in its own proper Poſt; and for that Reaſon, may, ſome of them, be greatly, and long, affected, whilſt others are intirely free; and may, conſequently, much affect ſome of the animal, and rational Faculties, while all the reſt are very orderly, and quiet. This is conceiveable. In the *Hydrophobia*, whilſt the Patients are really mad in whatever relates to *Dogs*, *Water*, and a few more Particulars; yet, are they not otherwiſe, in the main,

grateful, humane, and rational, for almoſt the whole Time? Doth not one Part of the nervous Syſtem in great Diſtreſs; and another, at the ſame time, tolerably free (except in a ſecondary way by Conſent of Parts), ſeem to account a little for this; which infected, mad, ubiquitarian, animal Spirits, I doubt, never can, either little, or much?

50. If the immediate Cauſe of theſe virulent, nervous Evils cannot lie either in the Blood, or animal Spirits; the Blood being much too ſluggiſh to be the Vehicle of poiſonous Cauſes, in many of their quicker Sallies; and infected animal Spirits, on the other hand, by much too rapid, penetrating, and excentric, to be the Vehicle in ſome of their more deliberate, and orderly Movements;

and vaſtly too extenſive in their Communication, for the *particular*, and *partial* Symptoms, always raiſed by ingrafted Poiſons; what then remains to conclude, but that the Emotions, Spaſms, and Strictures firſt excited by the poiſoned Stimulus in the Nerves and Filaments of the wounded Part, muſt owe their farther Propagation, and Increaſe, not to any Poiſon, or poiſoned Fluid hurried about in the Courſe of the Circulation; but to the perverted Vibrations of the Nerves and nervous Filaments, themſelves; they communicating the new vibrative Action, or rather Paſſion they received from the poiſoned Stimulus, to ſuch Fibres as lie next them; and theſe, progreſſively to others; and ſo on, juſt in the Order of their Contiguity, till the ſpaſmodic Contagion, ſilently catching from Fibre

to Fibre, and Part to Part, comes, at laſt, to reach ſome of the Nerves influencing ſuch Organs as are immediately ſubſervient to Health, and Life; and this ſeems to be the Point of Time, in which the Spaſms, and the Diſtemper, begin to grow evident.

51. Let me here offer an Inſtance wherein the Fluids are never ſuppoſed to be affected with Poiſon, or indeed with any thing elſe; and yet the Symptoms proceed, even unto Death, in almoſt all reſpects like thoſe proceeding from the Bite of an *enraged Viper*. Is there any Probability that the huge Swellings in the Arm, with all the other Symptoms and Dangers that ſometimes enſue upon the ſimple Puncture of a *Tendon* in Bleeding, can ariſe from any new Default this Puncture can

induce among the Fluids? As was ſaid before of the Poiſon of a *Viper*, what ſudden Change can this Puncture make in their Conſiſtence, that ſhould render them leſs thin, leſs fine, or leſs fit to be protruded along their ſeveral Capillaries than they were juſt before? No Poiſon is received here; and yet a Diſorder is generated, whoſe leading Appearances, if we allow but for ſome Differences in point of Time, are exactly the ſame with thoſe exhibited by the Poiſon of a Viper. Their *Advances*, and the *Order* they advance in, are the ſame; their *Execution*, if they are neglected, or miſmanaged, is juſt the ſame; and the *Methods of Cure* they ſubmit to, very near the ſame. The Steps uſually taken by the virulent Cauſe derived from the Bite of a Viper, we have conſidered already. Thoſe uſually taken

by the morbid Cauſe generated by the Puncture of a Tendon, let us conſider now; and if we find the Symptoms, Progreſs, and Execution, as I have repreſented them, ſo very like, in both; muſt not that induce us to believe their working Cauſes to be altogether as like?

2. As ſoon as ever the Tendon is pricked, the morbid Cauſe goes immediately to work; and it works on, without Intermiſſion, and yet without producing either Sickneſs, or any other conſtitutional Detriment, till a Swelling is raiſed in and about the Part: I ſay *without Intermiſſion*; becauſe if its Operation is once utterly ſuſpended, though but for a *Moment*, the ſame *material* Cauſe can never, *of itſelf*, begin to operate again; which, by the by, not only ſhews how

how reaſonable it is to ſet about ſuppreſſing all this Sort of Cauſes, early; but, *how eaſy*, perhaps, *it may be, to ſuppreſs them; even by Means, that, at firſt View, may appear very trifling, and contemptible*: But to return. This new Swelling then, gradually increaſes, as in the Bite of a Viper; an Inflammation then enſues; and the Swelling, and Inflammation, ſtill advancing, come at laſt to take up the whole Arm, with all that Side of the Neck, Back, and Breaſt; and if not well treated; and now, ſoon reſtrained, aſſuredly bring on *Sickneſs*, *Faintings*, *Convulſions*, and *Death*; nearly in the Order, and Manner they are brought on by the Bite of a *Viper*. Have not accidental, ſimple Punctures of Nerves, and Tendons, in other Parts, been often known to produce the ſame Effects? In theſe Caſes

too,

too, of nervous or tendinous Punctures, doth not the morbid Cauſe, for ſome of the firſt Hours of its Operation, uſually ſeem as if aſleep, and altogether innoxious; not producing the *leaſt apparent Swelling*, or giving the *leaſt uneaſy Senſation?* That, from the Puncture of a Tendon in Bleeding, ſeldom gives any Notice of the Evil till the Day after. Upon the Bite of a Viper, doth not the morbid Cauſe operate as inſenſibly, for ſeveral Minutes, or Half-hours, in the Beginning of its Progreſs? The Poiſon of a mad Dog frequently takes up more Time than either, in its own firſt underhand, unfelt, and treacherous Advances. Upon the Whole, is there not an apparent Analogy between the Effects of both Cauſes; that, operating after the Bite of a Viper, and that, after the Puncture

of

of a Tendon; both plainly indicateing an equal Analogy between theſe Cauſes? And what ſeems to illuſtrate this Analogy yet more, is *their Cure*; for, do not the *juvantia* and *lædentia* frequently ſerve us for very probable Inlets to the Nature of morbid Cauſes? And is not that ſmooth lenient Poultice, with which *Sydenham* ſo eaſily and ſpeedily allayed the terrible Symptoms excited by the Puncture of a Tendon, in the very Intention, and Manner, of the *Oils*, that happily put a Stop to any farther Progreſs of thoſe excited by the Bite of a *Viper*; with this Difference indeed; that Oils, however lenient and uſeful in the ſpaſmodic Grievances of all the neighbouring Parts, yet probably ſhould never be brought into immediate Contact with the Body of a pricked

Tendon? This cloſe Affinity between the Cauſes of ſpaſmodic Emotions raiſed by Poiſons; and the Cauſes of the ſame Sort of ſpaſmodic Emotions, not raiſed by Poiſons; do they not ſeem to acquit the Fluids from being any more faulty in the poiſoned, than we have found them in the unpoiſoned, Inſtances juſt now given? And doth it not ſeem to evince; that all ſtimulating Cauſes, whether poiſoned, or not poiſoned, that excite the very ſame Sorts of ſpaſmodic conſtrictive Agitations in the Nerves, and ſolid Fibres, and Filaments, ſhall alſo, *cæteris paribus*, exhibit the very ſame Sorts of morbid Effects in the animal Oeconomy?

53. UPON the Whole; is it not probable, though ſome Part of theſe poiſoned Liquors undoubtedly gets

into

into the Circulation, that ſtill they carry none of their Malignity with them, but leave it all behind among the Fibres of the Part they firſt affect; thus becoming as innoxious in the Veſſels, as the Poiſon of a Viper does in the Stomach? For, of the poiſonous Liquor emitted in the Bite of a Viper, is not ſome taken up by the venal Capillaries which return the Blood to the Heart; and ſome, by the abſorbent Lymphatics? And yet, if in an Hour after a Man is bit on the Hand by a Viper, the Skin of that Hand and Arm is well chafed with Oil, the Diſorder ſhall never proceed farther, and the Invalid is perfectly cured; though, by the known Laws of the Circulation, that Part of the envenom'd Liquor which comes to the Share of the capillary Veins, muſt have advanced into the Habit, and

even *paſſed through the Heart* long before there was any Chafing; and what was abſorbed by the venal Lymphatics muſt, in its own ſlower Way, have crawled on far out of the Reach of any Oils that could then be rubbed into the Skin, either of the Arm, or any other Part of the whole animal Surface. If then our Patient is cured, though the Oil that cured him never once overtook any of the viperine Liquor, that had, long before the Chafing, ſlid ſo deeply into the Habit; doth it not follow, that all that Liquor which it did not overtake, was not poiſoned; and that all the Poiſon was left behind; and lay ſomewhere within the Reach of the *Oil*; that is, lay *juſt under the Skin of the Hand, and Arm, working among the nervous Filaments of the Membrana celluloſa,* where Oil, well chafed

chafed in, can very eaſily come; and very probably ſooth, releaſe, and put an End to, the morbid *Spaſmuli, if applied at any time before they propagate their Emotions to the nobler* Viſcera? Is it not therefore probable, that in all theſe Caſes of ingrafted Poiſons, the virulent Cauſe is not carried about in the Circulation in any Fluid whatſoever, except perhaps towards the laſt Stages of the ſeveral great Diſorders they produce; but is left behind at the affected Part; and conſiſts in the particular Sorts of ſpaſmodic little Emotions and Strictures, firſt impreſſed by each Poiſon on the nervous Membranes and Filaments of the *Membrana adipoſa*; which *Spaſmuli*, beginning at the Part firſt affected, are gradually propagated thence, from Fibre to Fibre, till the ſpaſmular Contagion comes, in time,

to

to take hold of the Nerves governing ſome *Viſcera* that are more immediately ſubſervient to Health and Life; and that then, and not before, the more evident Spaſms, conſtituting both the Diſtemper, and its Danger, begin to exert themſelves? I have elſewhere, ſpeaking of the ſilent, inſenſible, and ſometimes long Workings of the Poiſon of a mad Dog, before it produces its Fit of Sickneſs, compared that, and ſome other virulent Diſorders, which in the Beginning work obſcurely in the ſame manner, with ſeveral Diſorders of the humoural Kind that play a long, underhand, inſenſible Game too, before the Sickneſs they are breeding, comes to Light. Theſe humoural morbid Cauſes I have repreſented as vitiateing the Fluids by little and little, till the growing Degeneracy arrives at a

Pitch beyond which it cannot proceed without ſtimulating into Spaſms the Nerves that influence the Oeconomy of ſome of the nobler Organs; which no ſooner happens, than the Perſon finds himſelf indiſpoſed, tho', during the whole Time of this growing humoural Corruption, he has not had the leaſt Feel of Indiſpoſition. I there hinted as if I had imagined, that virulent ſpaſmodic Cauſes, ſet on foot by inoculated Poiſons, had, in ſome meaſure, infected the Humours, during the firſt unperceived morbid Proceedings of theſe Cauſes: But the Reaſons lately inſinuated, and a few more to be given hereafter, incline me to believe they do not; but that their Action rather conſiſts in communicating of little ſpaſmodic Vibrations and Strictures to the Solids, without vitiating the Properties of

any

any of the Fluids, until the Diſtempers they at laſt produce, become manifeſt and dangerous.

54. If it be ſaid, that the Puſtules appearing all over the Body in the inoculated Small-pox denote the Poiſon's having circulated all over the Body too; it may perhaps as well be ſaid, that, no Puſtule, or Diſorder, or Feel of Diſorder, preſenting any-where for the firſt eight or nine Days after the Inoculation, no Poiſon has therefore circulated any-where for theſe eight or nine Days: For, is not the variolic Matter, uſed in Inoculation, generally reputed virulent? And the firſt conſtitutional Effects of virulent Cauſes, are they not generally deemed nervous? The *Virus* therefore of the Small-pox, if it affects any Fluid at all, muſt immediately

diately both affect and infect the animal Spirits; that only Fluid by which the Paſſion, as well as Action of the Nerves is ſuppoſed to be governed: And can the animal Spirits be infected for Hours, not to ſay Days, without the leaſt Symptoms of Diſorder in any one Part of the animal Oeconomy? Is this likely, or indeed conceiveable? And yet all this muſt follow, upon a Suppoſition that the inoculated Small-pox is originally an humoural Caſe; and that the variolic *Virus* acts by immediately tainting the Fluids. On the other hand, is it not very conceiveable, that a virulent *Stimulus*, applied to the Arm or Leg, may, juſt at the Place of Application, excite preternatural *Spaſmuli* among the nervous Filaments; and that theſe Filaments, thus agitated, may propagate the Sort of morbid Vibrations

they themſelves are infected with, to other Filaments that touch and ſurround them; and theſe, their own to others; and ſo on, till in this progreſſive ſlower Way of giving and taking morbid *Spaſmuli* from Fibre to Fibre, and Part to Part, the vibrative Contagion gradually arrives at the nobler *Viſcera*; at which time the Perſon inoculated juſt begins to find himſelf Sick? Doth not this ſlow, regular, contagious, unailing, inſenſible Progreſs of the virulent Cauſe, thus ſilently acting along the *Membrana cellulosa*, and among the coarſer Solids, ſeem to agree with all the Conditions of this Infection for the firſt eight or nine Days of its latent Operations? Though whether it poſſibly can, with the more precipitate Action, and ſpaſmodic nervous Effects, of this ſame virulent

Cauſe, hurried about with infected animal Spirits, I leave others to determine: But to return; As ſoon as the Spaſms have reached the nobler Organs, and the Patient grows ſick, inſtead of ſuch obſcure and unfelt *Spaſmuli* as were before confined to the coarſer muſcular Parts, and did not affect any of the greater Operations of the animal Oeconomy, there are now much ſtronger and more effective ones ſet on foot in other more eſſential Parts; and theſe, diſturbing and perverting the Secretions every-where, muſt neceſſarily diſorder and corrupt the Fluids every-where; from which new ſuperinduced ſudden Corruption of the Fluids, and the ſo often mentioned *partial Tendency* of the virulent Cauſe, all the little Obſtructions, Swellings, and Inflammations

of the Small-pox, are poured out, as uſual, upon the Skin: And this ſecond, and more evident Stage of the morbid Operations, from the Patient's firſt Symptoms of Illneſs, to the beginning general Eruption of the Puſtules, takes up between two and three Days, and ſometimes longer; after which, the Puſtules commonly advance, ſuppurate, ripen, decline, and go off, like all other ordinary little inflamed, ſuppurating Tumors; with this Difference, and perhaps no other, that their *Pus*, and *Exuviæ*, are impregnated with contagious Particles from the Solids; for, though the Fluids ſeem to be ſo little concerned in the firſt inſenſible and more deliberate Advances of theſe virulent Cauſes, yet when theſe Cauſes afterwards come to produce their ſeveral Diſtempers, and the

Spaſms among the more eſſential Organs are raiſed to their higheſt Pitch of Agitation, is it not probable, that ſuch of the Fibres as are moſt engaged, and are now convulſed, and ſhaken, and diſtreſſed in all their Parts, ſhall throw off among the Fluids, much larger Particles, and many more of them, than they uſed to do whilſt they only performed their own natural calm Oſcillations? And that theſe larger Particles may, after their Seperation, retain enough of the tremulous Virulence, and perhaps other poiſonous Qualities of the Fibres they quitted, to be able to communicate the ſame to the Fibres of Perſons whoſe Solids are diſpoſed to receive theſe Kinds of Infection; or, in other Words, to be agitated with theſe Kinds of morbid Vibrations? Is it not obſervable, that the

Small-

Small-pox is ſeldom, perhaps never, given, in any of the ordinary Ways of Contagion, till it has firſt arrived at the Summit of its Malignity? And is it not probable, that all theſe Poiſons are only communicable with any bad Effect, after the Infection has paſſed from its firſt inſenſible Workings, to its laſt deciſive Agitations? The nearer a mad Dog is to dying of his Madneſs, the ſtronger and the more dangerous is the Poiſon he emits.

55. WHETHER in the almoſt infinite Variety of the Spaſms, and Spaſmodic Emotions, an animal Fibre is liable to from different Cauſes, there is any real ſpecific Difference; or only that comparative one reſulting from their being greater or ſmaller, ſtronger or weaker,

ſeems

ſeems to deſerve a little Enquiry here; ſome Phænomena contributing to make it probable, that an animal Fibre, thrown into morbid vibrative Emotions by any poiſonous Cauſe, ſhall communicate the very Sort of Emotions it has got itſelf, to the Fibres that immediately touch and ſurround it; and theſe again to ſuch Fibres as touch and ſurround them, and ſo on, catching and communicating morbid *Spaſmuli* from one to another, till by degrees the Circulation at the Part firſt affected, comes to be reſtrained; a Swelling begins; an Inflammation enſues; both increaſe; the *Spaſmuli* multiply; and the Symptoms proceed as before deſcribed in the Puncture of a Tendon, and the Bite of a Viper? And is not this probably the very Order, and Manner, in which the Poiſon of a

Viper

Viper, firſt makes its Way in the Habit? In the Bite of a *mad Dog*, let us imagine the firſt excited morbid *Spaſmuli* to be of another Compoſition; and withal, comparatively ſmaller and weaker; the Vibrations and Strictures, exceſſively minute and languid; and their Communication and Progreſs proportionably remiſs; ſo remiſs, and obſcure, that neither Swelling, Inflammation, Pain, or any other morbid Effect, is produced or perceived, till theſe *Spaſmuli*, in their own languid creeping Way, ſooner or later, according to the predisposing Circumſtances, come to touch upon and affect ſuch Parts of the nervous Syſtem as govern the private Oeconomy of ſome of the *Viſcera* that immediately adminiſter to Health, and Life; of which particular Nerves, the ſpaſmodic Emo-

tions

tions at the ſame time excite the frightful Ideas of Dogs, Water, &c. with which theſe poor People are maniacally agitated; for, if certain Ideas affect only certain Nerves without affecting others; muſt not the wrong Affections of certain Nerves excite certain wrong Ideas, without exciting others? But ſhould it be objected to the Probability of all this, that if the firſt morbid Effects from the Poiſon of a mad Dog, are, as they are here ſuppoſed, vaſtly weaker, and ſlower, than thoſe from the Poiſon of a Viper; its laſt morbid Effects ought to be vaſtly weaker, and ſlower too, which is what they certainly are not. This may ſeem plauſible at firſt Sight; but let it be conſidered, that the real Greatneſs or Littleneſs of ſymptomatic Effects in the animal Oeconomy is never to

be eſtimated from the apparent Greatneſs or Littleneſs of their working Cauſes; the moſt languid, unheeded, and ſeemingly inſufficient Cauſes very often producing the moſt violent Effects; as tickling the Soles of the Feet lightly with a Feather, ſhall throw People into Convulſions, when currying them with a rough Piece of Canvas will have no diſagreeable or dangerous Effects at all.

56. As to what relates to that Communicableneſs before touched upon, of ſpaſmodic Emotions from one infected Fibre, or Set of Fibres, to ſuch others as lie in Contact with them; and that this Communication is not of mere morbid Vibrations indiſcriminately, but of the very Sorts of morbid Vibrations with which the

firſt ſtimulated and convulſed Fibres are themſelves infected; can this ſeem improbable, when we have ſo many Inſtances of a like Communicableneſs, not of ſimply ſpaſmodic Emotions only, but of complicated and ſimilar ſpaſmodic Emotions, even at a Diſtance? Are not Laughing, and Crying, ſpaſmodic Emotions, and readily communicated by ſome to others? By what latent Intercourſe of ſpaſmodic Affections between the diſtant Nerves of theſe Perſons this is done; whether it is like that between two, or more, diſtant muſical Strings tuned in Uniſon; or what it is like, I am not here concerned to inquire: I only mention it as a *Fact*, in which it appears that *ſimilar Spaſms are communicated, at a Diſtance, from one Set of animal Fibres to another.*

Hyſterics too have been ſuddenly catched the ſame Way; and ſo have unreaſonable Panics. Have not the fanatical Agitations of ſome religious Enthuſiaſts been communicated to Lookers on, in ſpite of all their own Endeavours to oppoſe them? And, doth not a Perſon yawning, communicate his Yawn, and no other Sort of Convulſion, to almoſt as many as ſee or hear him? Theſe ſpaſmodic Emotions, then, each regularly generated according to the Kind that poſſeſſes the Infector; the very ſame Sets, and little Syſtems, of Fibres ſtill convulſed in each; and all communicated at a Diſtance; are not theſe more difficult to conceive poſſible, were they not real Facts; and much more difficult to account for, as Facts, than any Communication of Spaſms, or ſpaſmodic

Emotions, that can be imagined to ſubſiſt between Fibres that lie together in Contact, and are, in other reſpects too, uninterruptedly connected one with another?

57. The Small-pox is ſometimes communicated, at great Diſtances, by a Fright. The firſt Effects of Frights, moſt certainly, are ſpaſmodic. They fling ſome of the Nerves into convulſive Emotions, and Strictures; and but ſome; for, with the whole nervous Syſtem either in Spaſms, or in a Palſy, there is no living a Moment. Other Sorts of Frights generally produce other Diſorders, if they produce any; this, gives the Small-pox; and not the Meaſles, or the Plague, or any other Diſtemper. Muſt there not be ſomewhat peculiar, and ſpecific, in both

both Cauſes; in the remote, as well as the immediate, to produce this particular Diſtemper? The immediate productive Cauſe, here, is the Spaſm; the remote, the Fright that cauſed it; and the Small-pox, the Effect of both; but why, among the numberleſs other poſſible Effects to be cauſed by Frights, and Spaſms, this only ſhould emerge, as it generally does on theſe Occaſions, is the Queſtion; and is it not, probably, becauſe this particular kind of Fright, excites ſpaſmodic Emotions of a particular Compoſition, among certain Parts of the nervous Syſtem; which Parts, thus agitated, are qualified to affect the animal Oeconomy in that preciſe, determinate Manner, that ſhall produce that very Diſtemper, and no other? Is it not therefore alſo probable, as was

before

before hinted upon another Occaſion, that any Cauſe, whether it is a ſtimulating one obtruded from without, or an Idea rouſed up, and agitating, from within, that can draw juſt the ſame Parts of the nervous Syſtem into juſt the ſame Kinds of ſpaſmodic Emotions; that the morbid Effects produced in the animal Oeconomy ſhall be, very nearly, the ſame, whether the Emotions are firſt excited by ſuch a *particular Sort of Stimulus*, or ſuch a *particular Mode of thinking*? And, is it not in much the ſame manner, that catching Cold, or perhaps eating or drinking ſome improper thing, or being diſcompoſed in Mind, ſhall, any of them, indifferently, throw ſome Perſons into the very ſame Diſorders?

58. If then to ſuppoſe either the animal Spirits, or the Blood, or any other

other Fluid, to be the Vehicles of Poiſons in the animal Oeconomy, appears to be incompatible with many of the Phænomena that ſucceſſively ariſe in the different Times, Movements, and Effects, of moſt ingrafted poiſonous Cauſes, eſpecially that of the mad Dog; and (what is of greater Conſideration ſtill) if all the Practice that ever yet was inſtituted in this forlorn Caſe, hath always been founded on that very Suppoſition; always levelled at purifying the Fluids from imagined Virulence, and Corruption; and always uncertain, or fatal *; doth it not

* Ex tota hoc hiſtoria conſtat hujus mali cognitio: Prognoſis autem elicitur ex conſideratione, &c. ſimulque cogitando triſtiſſimos ubique effectus, quum a nata medicina hucuſque, omnes fere artis principes deplorent, *Demorſorum prophylaxin vix ullam certam haberi; at jam aquam paventium ſanatorum, exemplum dari certa fide nullum!* Maxime vero dolendum, poſt

not evidently follow, that we ought to look out for this Virulence, somewhere else; and practise, in some other manner? Are not the Solids therefore to be deemed the chief Propagators, as well as Seats of it? And, is it not probable, that this Poison of the mad Dog in particular, during its first insensible latent Operations, which is the Time for using Prophylactics, acts only among the nervous Filaments of the *Membrana cellulosa*, in the slow, spasmular, contagious, progressive manner hitherto suggested; the first excited *Spasmuli*, always extremely languid,

post sæcula elapsa, irritum successum hactenus applicatorum deplorantia, *non esse tentatas diversas a primis morbodos.* Boerh. Aph. 1139.

Curatio omnis hactenus, pauciſſima exceperis, incerta, tam prophylactica, quam terapeutica; cujus prima causa, *inanis jactantia multorum specificorum, et neglectus methodi ex historiâ mali excogitatæ.* Aph. 1141.

and eaſily ſuppreſſible; their Progreſs; ſomewhat ſtronger, but ſuppreſſible ſtill; and their Ripeneſs, when the nobler Organs come to be engaged, and the *Hydrophobia* begins, not only very violent, but very dangerous; though, it ſeems, not utterly inſuppreſſible when treated before the great Spaſms bring on the Inflammations they ſo uſually generate, if they are not calmed and ſuppreſſed in due time?

59. If, as we have ſaid before, this Poiſon of the *mad Dog* does not at firſt circulate with the Fluids, any more than that of the Viper: If its firſt Action conſiſts in little vibrative inſenſible Emotions, and Strictures among the nervous Filaments of the Part bitten: If theſe morbid Vibrations are of a

certain

certain Kind, and Compoſition, peculiar to that very Poiſon: If they are at firſt exceedingly languid, as ſeems yet farther probable from the uſual eaſy Healing of the Sores: If their Advances in the Habit are made in the progreſſive Way of communicating the *Spaſmuli* along the *Membrana celluloſa:* If the Movement and Progreſs of theſe venomous *Spaſmuli* are generally very ſlow, as appears by the long time they often take before they come at the nobler Organs, and produce the *Hydrophobia:* On all theſe Accounts, doth not the Caſe appear to be *topical*, as well as *ſpaſmodic?* And muſt not all our Prophylactics aim at an utter Suppreſſion, or Extinction of the virulent *Spaſmuli*, in, and about the Parts bitten? which, once effected; can any eminent Organ come to be

 diſtreſſed?

diſtreſſed? or any *Hydrophobia* be produced? In order to the utter Suppreſſion of the virulent *Spaſmuli*, in, and about the Parts bitten, do not two main Indications preſent themſelves; which, though ſeemingly very different, yet tend to the ſame good Purpoſe; one is, to calm the *Spaſmuli*, and releaſe the little morbid Strictures of the Filaments; and this is to be done, either by the outward Application of ſoft, lenient, antiſpaſmodic Remedies, to the Part affected; or, by the internal Uſe of Medicines that are known to poſſeſs the Virtue of calming, allaying, and ſuppreſſing, Spaſms, and ſpaſmodic Emotions, where-ever they may happen, within the Habit. The ſecond Indication, ſo different from the former, is, to ſuppreſs, and put a Stop to the preſent morbid ſpaſmodic

Agitations

Agitations of the nervous Filaments, by ſtimulating them into other Spaſms of a different kind, that ſhall be ſtronger in their firſt Effects, but not dangerous in their Tendency; thus counteracting and deſtroying one ſort of Spaſms, by introducing another. If the Poiſon of a *Viper* is reſtrained by Meaſures analogous to theſe, why that of the *Mad Dog* ſhould not, will, I believe, be difficult to aſſign: And firſt, as to the *calming Indication*; doth not chafing with ſome *Oils* all round the Part bitten, hinder any further Propagation of that *Virus*, and ſecure the Patient? And how, but by calming, and ſuppreſſing the morbid *Spaſmuli* in the *Membrana celluloſa*? For, as to ſheathing of any invenomed *Spicula* of theſe Poiſons, though I juſt mentioned it elſewhere, I have no

Opinion

Opinion of it; becauſe, if the Poiſons fall to work the Inſtant they are emitted, they muſt ſurely have excited their virulent *Spaſmuli*, and thus have ſown all their Seeds of Miſchief, before there can poſſibly be any Sheathing; which ſhews ſtill the more clearly, that chafing with Oils ſucceeds in the Bite of a *Viper*, not by ſheathing of *Spicula*, but by releaſing of *Spaſmuli*, juſt as *Sydenham*'s emollient *Cataplaſm* ſucceeds in the Puncture of a *Tendon*, where there are no *Spicula* to ſheath. Now, as to the *Second of our Indications*, which we may call the *ſtimulating*; the Poiſon of Vipers hath been effectually ſuppreſſed that Way too; for is not the Action of Fire certainly ſtimulating? And hath not ſcorching the Parts bitten reſtrained that Poiſon, and cured ſeveral Perſons,

according

according to Mr. *Boyle*? Which probably muſt be by changing the firſt virulent, and weaker *Spaſmuli* excited by the Poiſon, into others of a ſtronger, but leſs dangerous Kind, excited by Fire; for it hath been already hinted, or rather indeed proved, that the whole Malignity of all theſe different Poiſons conſiſts in the peculiar Kind and Compoſition of the *Spaſmuli* they firſt excite; and that it is, for ſome time, confined to that Centre of Contagion, the Spot firſt infected, and its Neighbourhood: Does it not then ſeem very likely, that ſcorching with Fire; ſearing with Cauſtics; ſtimulating with Salts, and other pungent Applications; chafing with Oils; or proceeding by any other Method, whether topical, or internal, that ſhall calm and releaſe; or counter-

act, and ſubdue, the firſt little languid Nibblings of the Poiſon of a *mad Dog*, as yet only creeping along the *Membrana cellulosa*; is it not very likely, I ſay, that ſuch Means ſhall aſſuredly hinder any farther Propagation of that *Virus* to any of the nobler *Viſcera*; and conſequently, prevent the *Hydrophobia*; as before remarked?

60. The ſooner therefore, after any one is bit by a *mad Dog*, ſome of the moſt convenient of theſe Methods is brought into Practice, the better. A very Trifle, early enough applied, may ſubdue an Infection, whoſe firſt Movements are ſo extremely languid: They are uſually ſo ſlow too, that if ſome time ſhould have elapſed between the Bite and the Aſſiſtance, we nevertheleſs, may

well

well hope to ſucceed; differently from what we have been accuſtomed to perſuade ourſelves, whilſt, inſtead of taking our Opinion and Meaſures from its firſt infantine Feebleneſs, we took them rather from that laſt Fury with which it rages in the *Hydrophobia*; as if we were to play a Fire-engine on a ſingle Spark, becauſe it may one time come to burn a City. Hath not this prepoſterous Method of taking Indications for the Cure of Diſorders, not from *what they really are*, but *what they may poſſibly come to*, produced many fatal Errors in other Articles of Practice, as well as this; and haraſſed, and hurried Numbers out of the World, who might have been kept alive, nay, reſtored to good Health, under leſs precipitate Management? Is it not to this ſame miſtaken

Forecaſt that we owe the repeated Terrifyings, Sea-dippings, and other boiſterous and contradictory Meaſures now ſo often ſet on Foot as ſoon as People are bit by *mad Dogs?* Not to ſay, that the Boaſtings of ſome, with their Specifics, which *Boerhaave* complains of, and calls *inanis jactantia multorum ſpecificorum*; and the eſtabliſhed Notion of *poiſoned Fluids*, have all along amuſed the World into an utter Inattention to the regular Uſe of ſuch topical Applications, and internal Medicines, as are really qualified to anſwer in this Caſe; thus unhappily betraying Numbers into the *Hydrophobia*, who otherwiſe would have eſcaped, only by applying a little Salt, a Slice of raw Onion, ſcraped Horſe-radiſh, Cantharides, Vinegar, Spirits of Wine with Camphire, or almoſt any other ſtimulating,

ſtimulating, innocent thing, to the Sores; taking the Muſk and Cinnabar Powders, Aſſafœtida, Camphire, Caſtor, Wild Valerian, or any other principal antiſpaſmodic Medicine, two or three times a Day for ſome time together; and well chafing the Parts all round the Sore, with ſome penetrating, lenient Oil impregnated with Camphire; for which Purpoſe, is it not probable, that ſome animal Oils may ſerve better than any that are of vegetable Extraction, as they are generally more penetrating, and at the ſame time, equally calming?

61. I cannot here forbear to wiſh, that proper Perſons were to be inoculated with the Small-pox; a Courſe of antiſpaſmodic Medicines perſiſted in, for eight or nine Days; the Inciſions to be treated as we have

now propoſed in the Bite of a mad Dog; the Parts all about them to be chafed with ſome camphorated animal Oils; and all, to commence a Day or two after the Inoculation; to try whether theſe Means may not put a Stop to the farther Progreſs of that *Virus*. If they ſhould, it muſt eſtabliſh the Reaſonableneſs of this whole Theory; and yet, if they ſhould not, it can weaken it but little; conſidering one great Difference that muſt always ſubſiſt between theſe two Poiſons; which is, that ſome particular native Diſpoſition in the Generality of Mankind lies ſo open to the Infection of the *Small-pox*, that People often take it without any foreign Contagion; whereas none ever breed, or take the *Hydrophobia* in that manner; ſo that the natural Diſpoſition,

and the variolic Poiſon, joining Forces, may prove too many for the *Oils*, and other Expedients; which the Poiſon of the mad Dog alone, without that Concurrence, may poſſibly not be able to withſtand.

62. With regard to the prophylactic internal Uſe of Medicines; ought we not to give the moſt approved Antiſpaſmodics in ſufficient Doſes, as ſoon after the Bite as may be; to be continued twice a Day, eſpecially ſome Days before, and ſome Days after, the new and full Moons, for a conſiderable time together? If a timely, though too ſparing an Uſe of the *Muſk*, and *Cinnabar* Powders, has been able to ſuppreſs the Effects of this Poiſon, and prevent an *Hydrophobia*, in ſome; and that a more plentiful Uſe of it,

with

with ſome other Helps, has even ſubdued the *Hydrophobia*, in others; what in Reaſon may not be hoped from an early, judicious, and ſufficient Courſe of that, or of ſome others of the firſt Claſs of the anti-ſpaſmodic Remedies, in a Caſe that is really and eſſentially ſpaſmodic, from firſt to laſt; and when it comes to the *Hydrophobia*, is ſo like *Hyſterics* in many of the odd Characters *Hyſterics* aſſume, that all their Difference might, at firſt View, ſeem to lie in their Effects only, and little or none in their Aſpect? For hath a Symptom ever yet appeared in the *Hydrophobia*, not excepting even the *Dread of Water*, that has not, at one time or other, ſtarted up in hyſteric Diſorders? And, if they have not a *Dread of Water*, have they not often other maniacal Dreads;

and

and Apprehenſions, altogether as vain? May we not therefore, venture to conſider the *Hydrophobia* merely as a *virulent Hyſteric*? But to return to Prophylactics.

63. The Salt Water Dippings, now ſo frequently practiſed as ſoon as People are bit by *mad Dogs*, are meant, I ſuppoſe, by way of rouſing the Conſtitution to make the ſtrongeſt and quickeſt Efforts it can, to expel a Poiſon now believed to circulate in the Habit; and, it ſeems, theſe Dippings are indiſcriminately, as well as frequently, practiſed. How far this is ſafe, or reaſonable, may deſerve a little Conſideration; ſince there are many conſtitutional Circumſtances that may render theſe Immerſions, let them be intended for what they will, not only dangerous, but deſtructive.

ſtructive. There are certain Degrees of a general Relaxation of the whole Habit; and there is a certain Langyor of Circulation in the capillary Veſſels of the ſuperficial and extreme Parts, that may, ſometimes, require them; but as the Effects of Sea-dippings, and cold Bathing, are purely relative, and conditional; is it not one general and neceſſary Condition in their Uſe; *That a kind of* Equilibrium *muſt ſubſiſt among the nobler* Viſcera, *in their Secretions, and other Offices, before any one can be qualified to receive Benefit, and no Injury, from that violent Operation?* Is any conſiderable *Viſcus* weakened, or obſtructed? Are there latent glandular Indurations, or obſcure inward Ails from an increaſed Defluxion on any delicate Organ? Is the Habit full, foul, or leucophlegmatic? In

many

many of theſe Caſes, ſhall not cold Dippings be ſometimes prejudicial, ſometimes pernicious, and ſometimes even fatal? In ſtuffed, weakly, ſerous Habits, have they not produced incurable Dropſies? If any eminent *Viſcus* happens to be weaker, or more flaccid, than its Fellows, is there not, for that Reaſon, an additional morbid Flow of Humours already determined that Way? And muſt not the firſt conſtrictive general Effects of cold Immerſion always hurry them with a new *Impetus* where-ever they are leaſt oppoſed, which is ſtill at the weakeſt Part; and which, every new Irruption muſt weaken ſtill more? And muſt not weakening any principal Organ, both weaken and endanger the whole Conſtitution? Now, if the genuine Perfection, and natural Workings,

and Efforts, of the Conſtitution itſelf are the principal Aſſiſtants in ſubduing any Malignity it entertains, whether humoural or ſpaſmodic; can it be imagined that any Meaſures that ſhall tend to impair its Forces, can tend to ſubdue its Enemy? Is it not on this Account that the old, trite, preparatory Courſe of Bleeding, Purging, and low Living, ought never to be admitted, but under the niceſt Reſtrictions, when People are to be inoculated for the Small-pox; or fear they may take it the common Way; or happen to be apprehenſive of any other contagious Diſtemper that rages where-ever they are? And ſince of the ailing tenderer Part of Mankind, ſo few are qualified to eſcape being one Way or other much the worſe for theſe cold Dippings (for how few are there after Forty, and how many even before, can ſay they are

quite

quite well, *i. e.* quite ſound?); and ſince People of this ſort are as liable to be bit by mad Dogs, as others; is not the promiſcuous, and repeated Uſe of ſo violent a Remedy, very queſtionable; unleſs it can be ſuppoſed that being bit by a mad Dog, ſhall, like a Charm, immediately ſerve to protect a Pair of injured Lungs, a bad Liver, weak Inteſtines, a diſordered Brain, or any other impaired or declining Organ; from the firſt ruinous Onſet of every one of theſe Immerſions? or that it is imagined that there is no Way of ſubduing that Poiſon, but by deſtroying the Conſtitution it lurks in?

64. But ſetting aſide the unqualified, let us ſee how the qualified are to be helped by theſe Dippings. There is Poiſon, they ſay, lodged in

the Habit, and it muſt be got out as ſoon as poſſible. Be it ſo; but how do they operate to make them ſo very likely to effect that? Is it not ſuppoſed that the conſtrictive Shock the animal Oeconomy receives on theſe Occaſions may diſlodge the Poiſon, and hurry it off in one or more of the Secretions which at the ſame time are believed to be inlarged, and ſet a going? The Secretions oftenеſt moved by this Proceſs are thoſe by the Kidneys; and ſometimes the Perſpirations, each in their Turn. That by the Kidneys ſeems to be more directly promoted by cold Immerſions, and with leſs conſtitutional Trouble, than either of the Perſpirations; and yet how little it is to be relied on in ſpaſmodic Ails, is inferrable, not only from the Conduct of Nature, which ſcarcely

ever aims at relieving herſelf that Way; but from this Circumſtance, that a greater Flow than ordinary of Urine is oftener a Symptom of Spaſmodic Diſtreſſes elſewhere, than an Effect which can releaſe them anywhere, except by mere Accident. As to inſenſible Perſpiration, how often, or how ſeldom, ſpaſmodic Diſorders are releaſed by its Augmentation and Influence, I ſhall not here inquire; but Sweating (as we have obſerved elſewhere) is ever ready in all conſtitutional Exigencies, whether humoural, or nervous, virulent or common; neither can it, I believe, be poſitively affirmed of any of theſe, that it is ever completely ſubdued, without its Miniſtery, or Concurrence. If then, to make the Patient ſweat be what is chiefly intended by theſe Sea-immerſions

mersions (for indeed what else can reasonably be intended) ? are there not much safer, surer, and safer Methods of procuring gentle Sweats, which are ever preferable to Sweats extorted by dint of Agitation, and Violence, than being plunged into Sea-water till People are half-dead; which last Circumstance, it seems, passes for half the Cure? The great Professor *Boerhaave* gives an Instance of a Person who was bit by a *mad Dog*, and was afterwards shipwrecked, but through many Overwhelmings, and much Danger, made a Shift to escape. This Man's dying of an *Hydrophobia* some time after all these Immersions, inclined the Professor to think that all the Advantages accruing from that Operation must proceed rather from the Frights and Terrors to be impressed,

with

with great Threatenings, and a mighty Apparatus of Danger, than from the Immerſions themſelves: But might not that ſame Inſtance have ſerved to put him out of Conceit with the Frights too; and let him ſee they ſignified juſt as little as the Immerſions; ſince this poor Man was certainly as well frightened during the Plungings and Shocks he really underwent on that dreadful Occaſion of his Shipwreck, as he could afterwards have poſſibly been by any artificial mock Methods of Terror his Friends could put in Practice, either to agitate, or cure him? In the Caſe now before us of *Elizabeth Bryant*, it appears that ſhe was dipped in the Sea till ſhe could bear it no longer; and that ſhe was afterwards bathed in cold Water at home for ſeveral Days together; all

which,

which, inſtead of removing, or even allaying any of the prefatory Symptoms ſhe had then complained of, but aggravated them every one; and inſtead of preventing, ſeemed rather to have promoted the main Diſorder: Add to this, that of the Numbers we hear are bit by *mad Dogs*, and die of the *Hydrophobia*, there are very few who have not firſt tried the Merits of this faithleſs Specific.

65. The general Uncertainty of all the Methods that have been recommended to prevent the *Hydrophobia*, and the utter Inſufficience of all that have been practiſed to cure it, ſeem to owe their long, uninterrupted Poſſeſſion, partly to Inattention, and partly to certain Opinions, let me call them Miſtakes, that have almoſt univerſally obtained concern-

ing

ing the Nature of the Poiſon of mad Dogs, the manner of its operating in the human Body, and the true Genius of the Diſtemper it produces. To think with any Degree of Clearneſs, or judge with any Degree of Probability, of the Nature and Operations of ingrafted Poiſons; the different Effects they exhibit in two very different Stages of their Progreſs, muſt be carefully attended to, and nicely diſtinguiſhed: The firſt Stage, I may call, that of their earlier, weaker, and more obſcure Paſſage along the *Membrana cellulosa* among the coarſer and leſs eſſential Parts: The ſecond, that of their laſt, and more evident Exertions, when the venomous *Spaſmuli* have made their Way to the nobler Organs. The firſt produces neither real Sickneſs, nor immediate

Danger: The ſecond produces both: In the firſt, the Evil is merely topical; confined to one Part only: In the ſecond, it is diffuſed, and, in ſome meaſure, affects the whole animal Oeconomy. Beſides this more general Diſtribution of the Operations and Effects of theſe Poiſons; there occurs in what I call the ſecond Stage of the Poiſon of mad Dogs, a Succeſſion of Cauſes, and Effects, very neceſſary to be acquainted with; for, though a beginning *Hydrophobia* is purely nervous, yet where it is ſuffered to proceed, it generally becomes complicated with the moſt preſſing Inflammations, which ſtill uſher in the additional Symptoms that always belong to themſelves: And thus, from a Diſtemper, at firſt, but ſimply ſpaſmodic, it becomes mixt; and is

compounded both of the ſpaſmodic and inflammatory; whilſt therefore we took all theſe ſucceſſive different Actions and Effects, that occur in the Progreſs of this *Virus*, as it were in the Lump, without ſo much as being aware of the very Exiſtence of any ſuch Differences and Effects; and conſequently, without knowing either how to inveſtigate, or oppoſe, their ſeveral different conſtituent Cauſes; it is no Wonder we have advanced ſo little towards eſtabliſhing any ſolid Principles to found a regular, and accountable Method of Practice on, either for the Prophylactics, or Cure, of the *Hydrophobia*. Another Source of much fruitleſs and fatal Practice in this Caſe, was; that the Fluids of one Denomination or other, and conſequently the whole animal Oeconomy, were

ſtill thought to be poiſoned as ſoon as People were bit by *mad Dogs*. This unhappy Notion ſeemed very plauſible, maintained its Ground very peaceably, and gave riſe to a monſtrous Medley of blind and deſperate Efforts to prevent an *Hydrophobia*, by hurrying a Poiſon out of the Humours, that was never in them. As to the *Cure* of that Diſtemper; hath there not been a Foundation for perpetual Miſmanagement, deep laid, in the Opinion of its being highly inflammatory from the very Beginning? What Bleedings, what Clyſterings, what Coolings, what Inconſiſtencies, have not been practiſed upon that falſe Suppoſition? Then, with regard to the Contagion, Malignity, Modes of Operation, and other cardinal Properties of virulent Cauſes; what they conſiſt

in,

in, what they agree in, and how they differ; I ſay nothing of any Opinions concerning theſe, that have done either Good, or Hurt: But that *Tendency*, ſo often before taken notice of, which *Poiſons*, and almoſt all other foreign Agents, diſcover, of faſtening, as it were by Choice, on certain Parts only of the animal Oeconomy; and each on ſome ſelect Part of its own, ſtill leaving all the reſt of the Syſtem comparatively unaffected; this partial Tendency, though we may perhaps be never able to aſſign its Cauſe, or Cauſes; yet, as a *Fact*, we can apply to the Solution of many Queſtions and Difficulties in our *Pathology*; which, upon any other Principle, are extremely hard, if not indeed altogether impoſſible, to account for. Among many of this Sort, let me

aſk,

aſk, how it comes to paſs, that Numbers of People, of different Sexes, and very different Ages, Conſtitutions, and Ways of living, ſhall, much about the ſame time, be taken ill of ſome epidemical Diſtemper that ſhall lay hold of them all in juſt the ſame Parts very nearly, and in juſt the ſame manner; and this, in ſpite of the prodigious Difference that in many reſpects muſt undoubtedly ſubſiſt between all theſe Perſons? Muſt not this proceed either from ſome *latent Tendency* of the *common morbid Cauſe* to affect rather ſuch and ſuch a Part in ſuch a manner; as the *Throat*, for Inſtance, in a *Quinſey*, the *Pleura*, in a *Pleuriſy*, and ſo on; than any other Parts of the whole animal Syſtem? Or elſe, from the Tendency of this ſame epidemical morbid Cauſe to diſpoſe

ſuch

ſuch a Part of the animal Oeconomy, as it were, preferably to others, to be affected and influenced by ſome other *immediate* Cauſe; thus, either way, affecting ſuch particular Parts; whether we take it for the immediate, or prediſpoſing, Cauſe of the Diſtemper? As to the different kinds of *epidemical Fevers*; of which one is epidemical in one Conſtitution of the Air, and Seaſons; another in another; and each, differing very widely from the other; I believe, the greateſt Difference between all theſe kinds of Epidemics, with regard to their Symptoms, Progreſs, Duration, and Danger, will, on a cloſer View, be found to conſiſt, chiefly, in the Difference which, in point of Uſefulneſs, and Station, ſubſiſts between the particular Organs that are more directly and mainly attacked

attacked in each; ſtill taking into Conſideration the manner they are attacked in; which ſeems to ſhew that there is a Tendency in the epidemical morbid Cauſe to ſeize upon thoſe particular Organs more immediately and directly, than any others. Let me alſo obſerve by the bye, that this ſame *partial* Operation, and Tendency of foreign Agents, ſeems to confirm the antient Doctrine of the elective or ſpecific Operation of purging Medicines, already ſo well enforced by Dr. *Martyne*, in his learned Eſſay on that Subject.

66. I muſt not omit to take notice of that particular ſtrange ſort of cutting Pain *Elizabeth Bryant* felt in her bitten Hand, and that whole Arm *. It began with the *Hydro-*

* See the Caſe, p. 10.

phobia,

phobia, and did not end till ſhe was a great deal better. Doth it not ſhew, how much more the Poiſon exerted itſelf along that Arm, as in its own proper Sphere of Action, than any-where elſe? Are there not many Parts of the animal Oeconomy vaſtly more ſenſible, and more obnoxious to the painful Action of *Stimuli*, than the Arm? If the Poiſon had been carried about in the Circulation, muſt not this painful Effect have been diſplayed and felt more equally? and ſome other more ſenſible Parts been affected with the ſort of Pain ſhe felt in her Arm; or with a worſe? And yet it ſeems that extraordinary Pain was confined to that Arm, and the Parts immediately connected with it; ſuch as the Shoulder, Neck, and Throat; where it ſtill ſeemed to her to end;

the Pain ſuddenly returning to the Hand, and darting ſucceſſively along that Arm, and no-where elſe. It is true, ſhe felt ſome degree of Pain almoſt all over; but it was of quite another kind, and by no means ſo acute, or terrible; and ſhe had Catchings too, all over; but were they not, probably, ſymptomatic, and from a mere Conſent of Parts? The Pains firſt uſhering in the *Hydrophobia*, are found ſometimes, though very rarely, to begin at a Diſtance from the Parts bitten; but may not this happen by Conſent of Parts too (for Pain is ſometimes felt at a great Diſtance from its Cauſe); as a Stone in one Kidney has raiſed a conſtant Pain in the other that was ſound, whilſt the Patient had not the leaſt Feel of Pain in the Kidney affected?

67. The Pimples that broke out on *Elizabeth Bryant*'s Hand two-and-thirty Days after she was bit; whilst they ſhew, that the Circulation was a little affected at the Part; they ſhew yet farther, how great the Languor of the *Spaſmuli*, and how ſlow their Procedure in affecting the Circulation, muſt have been, conſidering the Length of Time between the Bite, and the Appearance of theſe Puſtules; as, their vaniſhing ſo ſuddenly, ſeems to indicate how little the Humour they produced was infected with any Poiſon. It was obſerved elſewhere, in ſpeaking of the Poiſon of Vipers, and the *Spaſmuli* they excite, although they do not cauſe Sickneſs till their Influence hath reached the nobler Organs; yet nevertheleſs, they are capable of diſturbing the Circulation

all

all over the Neighbourhood of the Puncture, sums to produce Swellings, Inflammations, &c *. Here, the *Spasmuli* excited by the Poison of a mad Dog have done the like; but then it was in a much inferior Degree; in a Degree almost next to nothing †. However, the Use of Caustics to the Part, in the manner of some antient Practitioners, will serve to counteract the venomous *Spasmuli*, as before hinted; or if they cannot be applied to the very Part, the inserting them any-where near, especially above the Sore, may help to intercept their farther Progress towards the greater *Viscera*.

* See Q. 45. † See Q. 55.

FINIS